

# POPULAR *40 Rock* Only 50p. Computing WEEKLY

with Home Computing Weekly

23-29 January 1986

*It's the best selling weekly*

Vol 5 No 4



**Las Vegas  
show  
report  
see p6**

## Commodore 128D launched at NEC

COMMODORE stole the limelight at the *Which Computer?* show at Birmingham NEC with launch of the 128D, and the first public showing of the Amiga, despite the fact that the show is mainly aimed at business heavyweights.

The 128D, intended as a small business complement to the 128, features a built-in 4.5 inch disc drive and the 1571 doubled-sided disc drive. The other major difference

between the 128D and the 128 is the detachable keyboard, a feature designed to attract business users.



The C128D package also includes a green screen monitor which supports 40 and 80-column displays making it easier to run software written for the best-selling 64, as well as dedicated 128 programs.

Some new software was being demonstrated, including *Script 128* and *Vizawrite 128*, both word processors programs; *Micro Clerk*, an integrated suite for retailers; and *Acquisition*, a programmable database with similarities to the best-selling *dBase II/III*.

Commodore says the machine will be available from next month priced, including VAT, at £538.85.

The Amiga attracted large crowds, although there was very little software on show to appeal to business users, which is the market Commodore is primarily aiming at in this country. So far, there is a reasonable range of programming languages, some exciting graphics and sound packages, and a small number of useful applications.

Commodore's UK sales and marketing director, Chris Kaday, talked optimistically  
**continued on page 4 ▶**



The Atari ST version of *The Pawn* is to be released by Rainbird Software in mid March, and was unveiled at the winter CES in Las Vegas recently (see show report on page 6).

It is the first of a planned series of conversions of the program which was first released on the QL last autumn.

The *Pawn* has been praised for its highly sophisticated

cont. p4 ▶



**INSIDE THIS WEEK  
NEW SERIES  
The Atari 520ST  
Software and firmware**

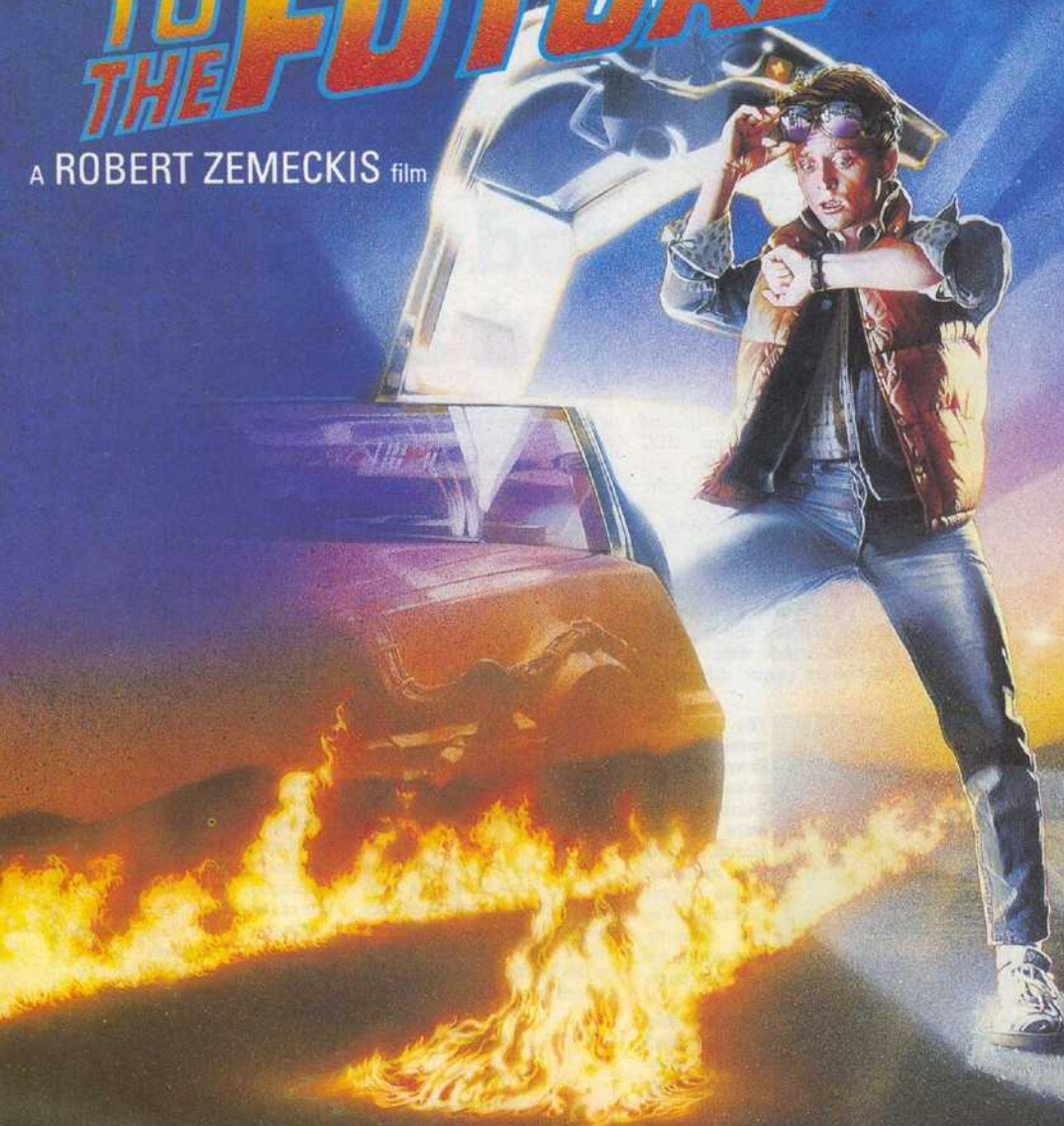
**INSIDE ▶ THIRD SPECIAL OFFER COUPON TO CUT OUT - P8 ▶**



STEVEN SPIELBERG Presents

# BACK TO THE FUTURE™

A ROBERT ZEMECKIS film



THE COMPUTER PROGRAM FROM

Available on Spectrum 48K Plus, Commodore 64  
and Amstrad from Electric Dreams Software  
31 Carlton Crescent, Southampton, Hampshire  
SO1 2EW Tel: (0703) 229694

*Electric  
Dreams*

© UNIVERSAL CITY STUDIOS INC.

SOFTWARE



## 4 NEWS

More Atari STs on the way?

## 6 SHOW REPORT

David Kelly visits downtown Las Vegas and reveals the intimate details of the Winter Consumer Electronic Show

## 10 ST SOFTWARE SERIES

You've got the power....now here are the programs. This week Jeff Naylor evaluates 1st Word on the ST

## 12 SOFTWARE REVIEWS

Deus Ex Machina revisited on CBM - Austerlitz on Spectrum

## 14 READERS POLL RESULTS

The good, the bad and the ugly...

## 16 BBC AND ELECTRON

Comprehensive function plotting on the BBC B

## 20 AMSTRAD

More Random Access Filing on the 464

## 23 SPECTRUM

Part One of a combat system for adventurers

## 24 COMMODORE 64

Everything you always wanted to know about interrupts



8 Letters

19 Codewords

25 Rogue Program

26 Arcade Avenue

28 Adventure Corner

35 Top Ten Charts

36 New Releases

36 This Week

38 Puzzle, Ziggurat Hackers

## EDITORIAL

**C**ommodore's launch of the 128D at £573.85 at the *Which Computer?* show lends more, rather than less confusion to its marketing strategy for 1986.

The 128D is aimed at the small business user, and as such, provides a viable option to other inexpensive CP/M machines such as Amstrad's CPC 6128 and PCW 8256, a cheaper alternative to more established business computers, and possibly some competition from Acorn's Master 128.

But the greatest competition may well come from its own sibling machine, the C128. The C128 is either a revamped Commodore 64 at £269, or a possible for the small business and more serious user with its army of peripherals. When put together, an equivalent system for the 128D (monochrome monitor, 1571 drive, which

Commodore still plans to launch separately) will cost between £570 and £670.

There are three possible markets here for three Commodore machines: for the games player who wants lots of software and the chance to tinker with utilities, music, and programming, the 64 (quite feasible). For the serious small business user, who doesn't want to spend too much and doesn't mind having access to the odd game, the C128D (equally feasible). And for the small business user who wants to buy a system one piece at a time, or the games player who wants a very expensive 64, the C128 (not so feasible).

The C128D fits neatly into a slot for the serious user who will also enjoy the advantages of 64 compatibility, but it leaves the C128 in an uncomfortable niche.

Editor Christina Erskine Features editor Graham Taylor Software editor John Cook Production editor Lynne Constable Editorial secretary Lucinda Lee Advertisement manager Jeff Raggett Advertisement Executive Diane Holyoak Advertisement executive David Osen Administration Geraldine Smyth Managing editor Peter Worlock Publishing director Jenny Ireland. Published by Sunshine Publications Ltd, 12-13 Little Newport Street, London WC2H 7PP. Tel 01-437 4343 Telex 296275 Typeset by Publishers Reprographics Services Ltd, 4 Roger Street, London WC1. Printed by Greenaway Harrison, Sutton Road, Southend-on-sea, Essex. Distributed by S.M. Distribution, London SW9. Tel 01-274 8811, Telex 281643 © Sunshine Publications Ltd 1986.

**ABC**

58,052 copies sold every week (Jan-June 1984 ABC).

### Popular Computing Weekly. Tel: 01-437 4343.

**How to submit articles** Articles which are submitted for publication should not be more than 2000 words long. The articles, and any accompanying programs, should be original. It is breaking the law of copyright to copy programs out of other magazines and submit them here — so please do not be tempted. **Accuracy** Popular Computing Weekly cannot accept any responsibility for any errors in programs we publish, although we will always try our best to make sure programs work.

Computer Trade Association Magazine of the Year

### ADVERTISEMENT

'The Enterprise comes very close to the theoretical ideal of how a computer should be' — Neil Blaber, BSc computer science student





## CBM launch at Which? Show

◀ continued from page 1

about specialist applications like desktop publishing and graphic design, but Commodore needs to win the support of the mainstream business software market.

Apple used the show to announce the second stage in the Macintosh's development and to cease production of the first, the 128K Mac.

The new machine, called the Macintosh Plus, comes with 1 megabyte of Ram and a new disc drive that gives 800K of storage on a single 3 1/2 inch disc.

Apple has also enhanced the operating system Rom which now gives better graphics and much faster operation. A new, fast peripheral interface has also been added.

The Mac Plus will cost £2,295, while the 512k Fat Mac stays unchanged – a system including Imagewriter can be had for around £1,700.

Elsewhere, Amstrad was making its *Which Computer?* show debut, promoting the PCW8256 and 6128 machines to the business community. It was assisted in the venture by Digital Research, which launched four of its best known packages for the machines. (see separate story).

## Sub £100 modem now ready

THE sub-£100 Voyager 7 modem is now available from Modem House. Also available is the more sophisticated Voyager 11, for business micros, at £114.94.

For £91.95, the Voyager 7 offers auto-dial and auto-answer facilities, with baud rates of 1200/75, 75/1200 (reverse Prestel), 300/300 full duplex and 1200/1200 half duplex. Software is also available for a wide range of micros, including Atari XLS and XE, the Amstrad range, including the PCW 8256, BBC B and Commodore 64/128.

For the Amstrad, the software uses the SkyCom multi-

port interface, which gives access to Prestel's Amsnet. The Commodore software was jointly produced by Modem House, Y2 computing and Micronet, and the BBC software also supports all Prestel functions.

Modem House also plans a Spectrum Voyager package and packs for the Atari ST and QL in the next month or so.

Further details from Modem House, 70 Longbrook Street, Exeter, Devon, EX4 6AP (0392 213355).

# New ST with bitter tipped for Atari

ATARI is now strongly tipped to be working on a completely new ST machine, which will have greatly enhanced graphic capabilities.

The new ST will not necessarily take on more memory, probably remaining at 512K, the size of the 520ST, now Atari's entry level machine in the US. However, it will incor-

porate a co-processor graphics blitter (block image transfer). A blitter is a device, currently used in Commodore's rival Amiga micro, which transfers data held in one memory location to another memory location. It can speed up computer operations considerably particularly in screen handling.

Atari executives were neither confirming nor denying the existence of such a project. "There are rumours, but we're not ready to announce anything yet," said Neil Harris, Atari US's hardware product manager. "But you may hear some interesting announcements at the Hannover Fair this spring."

## Art studio offer from Rainbird

THOSE who want to add a professional touch to pictures created with Rainbird's *Art Studio*, can now do so, courtesy of Dimension Graphics.



For £4.95, Dimension will dump your picture to A4 size paper, using its sophisticated ink-jet printer, from cassette or disc. A more professional screen dump can be obtained for £7.95 – Dimension will mount your masterpiece on card and gloss laminate it.

The offer is available to Spectrum (cassette only), Commodore and Amstrad *Art Studio* users.

Further details from Rainbird Software, Wellington House, Upper St Martin's Lane, London WC2H 9DL.

## Apple announces rosy results

APPLE has announced record results for the quarter ending December 27, 1988.

Profits reached an all-time high of \$56.9m (£39.79m) on sales of \$533.9m (£373.35m). This sales figure is Apple's second highest ever.

The announcement comes at an encouraging time for Apple – its upgraded Macintosh Plus was unveiled at the *Which Computer?* show last week. The results also follow stringent cutbacks made at both Apple's Californian base and its British division.

## DR Moves on Amstrad



GEM and CP/M creator Digital Research has turned its attention further to Amstrad's PCW 8256 and CPC 6128.

The company has launched four packages for the machines – *DR Graph*, *DR Draw*, *Pascal MT+* and *CBasic Compiler*. Its Logo is already bundled with the machines.

*DR Graph* is a business graphics program, while *DR Draw* is designed to create visual aids for business presentations.

*Pascal MT+* is a compiled

version of ISO standard Pascal, and *CBasic Compiler* allows Basic programmers to produce fast stand-alone applications. Each title costs £49.95. Details from DR at Unit 12, Fenton Way, Southfields, Basildon, Essex.

Mirrorsoft has asked us to point out that only an ordinary premier has so far been arranged for the film *Biggles* (see *Popular Computing Weekly*, Jan 16).



# THE No.1 HIT



**NOW  
AVAILABLE  
FOR  
SPECTRUM 48K  
AND  
AMSTRAD  
CPC 464**

**THE ACTION-PACKED  
COMBAT  
SIMULATION**



Amstrad Screen

**ENEMY PLANES ATTACK ▶  
SUDDENLY WITH DEADLY  
FORCE**

◀ **OUT OF YOUR COCKPIT WINDOW  
AS YOU SWOOP DOWN TO TAKE  
OUT SOME TANKS**

Spectrum Screen



**'SKYFOX' is the most realistic awe-inspiring combat simulation you've ever seen on your computer. 'SKYFOX' special features include —**

- ▶ **AIR TO AIR & AIR TO GROUND COMBAT**
- ▶ **3D SCROLLING FLIGHT SIMULATION**
- ▶ **15 SCENARIOS** (from training mission to massive invasion)
- ▶ **5 SKILL LEVELS** (from cadet to ace of the base)
- ▶ **AUTO PILOT FEATURE FOR LAUNCH & ENEMY SEARCHES**
- ▶ **ON BOARD & BASE TACTICAL-COMBAT COMPUTERS**
- ▶ **CONTINUOUS LASER CANNONS**
- ▶ **HEAT-SEEKING & GUIDED MISSILES**
- ▶ **JOYSTICK & KEYBOARD CONTROLS**

## • GET SKYFOX NOW •

**Available from all good software retailers — if its not there, please order it — or in case of difficulty send your crossed cheque! P.O. made out to Ariolasoft U.K. Ltd., including your own name and address, to Ariolasoft U.K. Ltd., Suite 105/106, Asphalte House, Palace Street, London SW1E 5HS.**

▶ **SKYFOX — Spectrum Cassette £8.95** ▶ **SKYFOX — Amstrad Cassette £9.95**

UK orders only. Prices include P&P. Please allow 28 days for delivery.

**ariolasoft**  
HIGH PERFORMANCE PROGRAMS



# CES Show Report

**A**nd so to the Sky Ranch Motel in down-town Las Vegas: Clean, warm, friendly. Stop in for coffee and directions, proclaimed the huge neon sign. A pool at the side of a six-lane highway, its restaurant a 24-hour takeaway pizza joint in the back room of a slot machine alley.

Yes, it's the Winter Consumer Electronics Show again. Time for the biggest gathering of micro companies in the American computer calendar. Over 100,000 visitors fly thousands of miles just to spend four days in the desert. Those that book early get into the Hilton, or the Dunes, or the Desert Inn. Those that don't end up at the Sky Ranch...

**T**his was the show when Atari came good. Not only did it announce some spectacular price reductions and a new machine, but its main competitor Commodore seemed to fade away.

No-one expected Commodore - currently losing around \$30m (£20m) a quarter - to exhibit at the convention centre, but it was surprising that the company gave a press conference on the first day of the show only.

In many ways it was a crucial show for both Commodore and Atari. Neither can be described as financially muscle-bound, yet both have new 16-bit micros in the US shops - Commodore's Amiga and Atari's 520ST were both out before Christmas. And software is a crucial factor in each machine's success.

Now, unlike the situation in Britain, nearly all the major US software houses have abandoned almost entirely the development of programs for the 8-bit machines (Commodore's C128, C64, Atari's XE range and the Apple II - neither the Spectrum nor Amstrad has made any impact in the US). Instead they have switched to developing some exciting products for the 68000-based machines.

The problem is that none of them know which machine - the ST or the Amiga - to support. An unprecedented number of US software firms didn't have stands at CES - instead sending roving representatives to evaluate the performance of Commodore and Atari.

So it was a grave miscalculation on the part of Commodore not to exhibit. The decision had the effect of largely shattering confidence among the US houses that Commodore would come good with the Amiga. Even Electronic

Arts - the most outspoken supporter of the Amiga - began to get twitchy. It has invested \$600,000 (£400,000) in developing Amiga material and its marketing vice president Bing Gordon admitted to being disappointed at Commodore's absence.

Atari reacted to the situation aggressively as only Jack Tramiel knows how. Its large stand was packed throughout the show with people eager to see the 520ST go through its paces. Its price in the US is now falling rapidly. The 512K machine with mouse, Gem, 3½ inch disc drive and colour monitor now costs just \$899.95 (£600). The monochrome monitor version is \$700 (£475).

Even more interestingly Atari is to sell a version with just the 520ST and mouse for \$399 (£265). The machine now comes with a built-in TV modulator meaning you can use it with an ordinary television.

It could mean that a similar version of the 520ST could end up in Britain selling for, say, £400.

Atari also announced a 1M version of its ST for under \$1,000 (see *Popular*, January 16), and a pack of its 8-bit 130XE micro, 1050 disc drive and 1027 letter-quality print-

er for \$399 (£265).

Atari's ST and 130XE models are now both about half the price of their Commodore competitors, the Amiga and C128, which should give Commodore something to think about.

Apart from Atari, by far the most significant shift of emphasis in the US, is the switch by software houses to produce 16-bit software. The programs now in development really are a generation on from anything seen for the C64 or Spectrum. They are a vindication that 68000 is everything it has been cracked up to be: a quantum leap in graphics, sound, complexity of program and entertainment value. Programs like Electronic Arts' *Deluxe Video* and *Return to Atlantis* (the latter still in prototype form) for the Amiga and *The Pawn* from our own Rainbird via Magnetic Scrolls on the ST make the point very well.

On the 8-bit software side, most of the new material at CES was for the C64. Apart from a very neat golfing simulation from *Beach-head* author Access, called *Leader Board*, there was little of great interest. Microprose showed three new simulation programs for the C64/C128. *Acrojet* is *Decathlon-meets-Flight Simulator*, ten acrobatic flying manoeuvres to perform; *Silent Service* is a submarine simulation; and *Conflict in Vietnam*, according to the blurb offers "all the dangers, defeats and victories of more than 20 years of struggle in the jungles and rice paddies". Presumably the object is to embroil your country in a brutal, cruel war it can never win. *Jet*, the follow-up to *Flight Simulator II* on the C64/C128 from Sub-Logic, looked good, as did a new disc of alternative scenery for *FS II*.

One interesting side effect

of the dearth of new C64 material in the US is that British developed material is suddenly much in demand. Two UK companies are currently making significant in-roads into the American market: Mastertronic and Firebird, the latter via a new US subsidiary Firebird Licensees.

There were also quite a few bits and pieces of interest on the hardware side. Bodylink is a peripheral for the C64 costing £229 (£160) which measures your heart rate, skin conductivity and muscle activity whilst working out. The X-10 is the lowest priced home control system yet seen, controlling household electric appliances via a \$50 (£33) unit and software for the C64.

Grolier Publishing showed a compact disc player and software linked to a micro. The system using a dedicated Philips CD player costs \$1200 (£800) and connects to an IBM PC. Grolier has put its American Academic Encyclopedia on CD, containing an incredible 220,000 pages of A4 text for \$199 (£132).

But this was unquestionably Atari's show. With its new deal for the US it is now likely that the ST price will in turn be slashed in the UK. Then the ST will be the first affordable full 68000 machine.

By the final day of the 1986 Winter CES, when exhibitors and visitors alike lost interest in the show and became gripped by American football mania - the Bears and Patriots romped through the final play-off and a place at the Super-bowl - it was universally acknowledged that Atari had played and won.

David Kelly

Next week: Software fit for a new generation - some of the startling material now being produced for the ST and Amiga micros.





# BEYOND

CHALLENGING SOFTWARE

AN ALL-ACTION GAME NOW PLAYING  
ON SPECTRUM & COMMODORE  
FROM DENTON DESIGNS  
BRILLIANT  
SOUND-TRACK  
(on SPECTRUM too!)



FOR 1 PLAYER USING  
JOYSTICK OR KEYBOARD

AMAZING  
INTERACTIVE  
ANIMATION



SHOOT-em-UP or STRATEGY -  
YOU CHOOSE

WE'VE TAKEN THE ICONS OUT OF SHADOWFIRE;  
DEVELOPED SOME INCREDIBLE  
ANIMATION TECHNIQUES;  
AND COMPOSED A POWERFUL  
MUSIC SCORE...  
THE RESULT?...

...AN ADVENTURE IN WHICH  
YOU SEE, HEAR AND EXPERIENCE  
THE ACTION!

AVAILABLE FROM BOOTS, MENZIES, W H SMITH AND BETTER SOFTWARE RETAILERS NATIONWIDE.

IF YOU HAVE DIFFICULTY LOCATING YOUR COPY WRITE TO: BEYOND, BRITISH TELECOM, WELLINGTON HOUSE,  
UPPER ST. MARTIN'S LANE, LONDON WC2H 9DL.



# Letters

## Argus tape

As you now incorporate *Home Computing Weekly* with your magazine, I wonder if you can help me with my free computer tape as offered in the last edition of *HCW*, which had a coupon in it offering a free tape for my Plus/4.

I posted this to Conlon Development several weeks ago, and the tape has still not arrived. I wrote to Conlon asking them to look into it, but have not received any reply.

George Chappell  
Leeds

The *Home Computing Weekly* free tape offer is in fact still being dealt with by its former publishers, Argus Press. Anyone with queries should write to Argus at 1 Golden Square, London W1, or phone on 01-437 0626.

## Virgin help

I own a Commodore 64. Shortly before Christmas I ordered a copy of *Now Games 2* for my son direct from Virgin Games. In just a few days it arrived, but unfortunately *Airwolf* would not load. At first I thought the tape was faulty and as it was only a week before Christmas I phoned Virgin and asked them to help.

They immediately sent me a replacement tape, which I received within two days, but the same problem occurred. I then realised that the problem could lie with my data recorder, so I returned the replacement tape with my apologies to Patricia Mitchell at Virgin. Again just two days later I received a letter from her with advice on concerning an Azimuth alignment kit and offering another tested tape if I needed it.

Indeed, the head alignment system is probably out, but in the meantime, I discovered

that if I prewarmed the tape and recorder carefully I could load *Airwolf* successfully, which leads me to think that condensation due to cold weather was part of the problem.

However, I have nothing but praise for the way Virgin dealt with my difficulties and for the speed in which they responded to my queries. I only wish a lot more companies could be the same.

Martin Bennett  
Oldham  
Lancs

## Ink flow

I have an MPS 801 printer. I find that the ink very soon runs out with the amount of printing that I have to do, and at £8 a throw the cartridges are very expensive. I have been using purple cash register ink (goo) to reload, but some of my customers are not 100% satisfied with this arrangement.

I would be obliged if you could tell me where I might purchase some suitable black ink.

A R Griffiths  
Houghton Regis  
Beds

We understand that it is possible to re-ink Epson cartridges with black stamp pad ink, which is available from stationers. It should therefore be feasible to use the same for yours.

## Not so popular

As an avid reader of your magazine I must thank you for covering a wide range of computers. The problem is having a not so popular computer like the Tatung Einstein like myself. I find it hard to obtain full use of the magazine. Could please run a spot for the not so well known computers, covering a different one each week. I'm



"The bouncing ball was in!"

sure many more people would then be encouraged to write in.

Also, I purchased one of your buggies for my Spectrum which arrived with no instructions. A note was included saying they had no instruction sheets and to look in Vol 4 No 11. I sent away for a back issue only to discover none were left. So please could any reader sell me the vital issue to allow me to assemble the buggy.

A Herbert  
8 Colinton Mains Grove  
Edinburgh

## In defence

I read with nods of approval A B Wright's letter in Issue Vol 5 No 2 defending the Spectrum and celebrating the M1009 Brother printer. It is plain that both flourish despite critical denigration of the one and neglect of the other.

On the matter of getting Spectrum listings from the M1009, I do not know what interface Mr/Ms Wright is using, but with Interface 1 I have had no difficulties. I would write on these lines:

900 FORMAT "t"; 9600: OPEN #3;"b": OPEN #4;"t"  
910 PRINT #3; CHR\$ 27; CHR\$ 82; CHR\$ 0;

920 PRINT #3; CHR\$ 27; CHR\$ 69;  
930 LIST #4  
940 CLOSE #3; CLOSE #4

Control codes go through the binary channel and text commands through the text channel as the Interface 1 manual directs. Line 910 selects the American character set to give the hash sign as one would want in a listing, although this will lose you the £ sign unless special translation arrangements have been made. Line 920 gives emphasised mode which I like for clear listings.

The typeface will be pica by default, but "PRINT #3; CHR\$ 27; CHR\$ 77;" or "PRINT #3; CHR\$ 27; CHR\$ 15;" would respectively give Elite or Condensed print if a more compact listing is wanted. The numbers given to channels "b" and "t" are, of course, at the programmer's option.

My Brother manual puts the control character numbers in brackets, but I find the Spectrum wants them in clear as above. I hope this may be of help. I hope also that Mr/Ms Wright caught N Hankin's splendid machine code screen dump routine for the Spectrum/M1009 combination in your Xmas week Bytes & Pieces. It goes like a train.

G C Watson  
29 Chisholm Road  
Croydon  
Surrey

## Impossible

I must agree with Kevin Marks letter in Vol 5 No. 2. I've found it impossible to do some fairly standard adventure game techniques such as altering the map during play on Incentive's *Graphic Adventure Creator*. Incentive's package is nice to use for simple things but unfortunately most games worth writing need to have some complex problems as well as the simpler ones, otherwise it is too easy.

I keep getting half the problem set up, then finding there is no way of completing it - the structure of GAC just seems to prevent it.

T Corby  
Torquay  
Devon

## Special Offer

COUPON  
3

Here is the third coupon to cut out and add to your card in our Special Offer. Remember, once you have collected all the coupons, you can claim either a free Firebird tape, or Tony Kendle's new *Arcade Champions Guide*.



# "Reason enough to buy an Amstrad!"

TONY BRIDGE,  
POPULAR COMPUTING WEEKLY

"Will change the face of the  
adventure software market."

AMSTRAD ACTION

"A very clever and friendly  
piece of software."

KEITH CAMPBELL,  
COMPUTER & VIDEO GAMES

"The most astounding program  
I've ever encountered on an  
eight bit machine."

"98% overall."

AMTIX ACCOLADE AWARD WINNER

## THE GRAPHIC ADVENTURE CREATOR

*Probably*  
THE BEST ADVENTURE  
WRITING SYSTEM  
IN THE WORLD.

OUT NOW FOR ALL AMSTRAD  
CPC COMPUTERS.  
CASSETTE £22.95 DISC £27.95  
(introductory offer on Disc until  
1st February - £24.95)

COMING SOON FOR  
SPECTRUM, COMMODORE  
AND BBC

Telephone orders and enquiries  
(0734) 591678

**INCENTIVE  
SOFTWARE LIMITED**  
54 London Street, Reading RG1 4SQ.



# Writing on the wall

Jeff Naylor kicks off our ST software series – with a look at 1st Word

Atari UK's recent decision to change the software supplied with the 520 ST leaves those with ST's and still waiting with just one major question – how good are the substitutes?

In place of Digital Research's *GemWrite* and *GemPaint*, ST owners are to be given the word processing package *1st Word*, a database entitled *DB Master*, *Doodle*, a graphics program, and *Megaroids*, a game. At the time of writing, all but *Doodle* were ready for release, so there should not be too long to wait (again); will it be worthwhile?

## 1st Word

Early versions of *1st Word* are being released without printed instructions, but a file called *Readme* informs you how to load and print out the manual, *Guide.Doc*, using *1st Word*. *1st Word* preserves the Gem desktop environment, changes the pull-down menus and adds two desktop accessories. One is a table from which you can select characters with the mouse, transferring them to the cursor position in the current document. This may seem like a gimmick but does allow you to use characters not available from the keyboard. In addition, ten labelled function keys are displayed across the bottom of the screen. Neither the character table or function keys can be moved, and remain underneath any windows opened over them.

The pull down menus can be used to select most of the program's features including some allocated to the function keys; these can also be operated by clicking the mouse over key icons.

The first menu is headed by the Atari symbol and gives the same options as *Desk*, including access to the control panel to alter keyboard and mouse response. Next is *File*, which gives a long list of options. *Open* calls the Gem item selector; the initial directory mask is *A:\**. *Doc*, thereby giving you the choice of all the files in drive A with the type part *Doc*. You may select a file with the mouse or enter a new filename.

Entering text into a document window is very straightforward. Cursor keys, *Del* and *Bs* all function and when combined with *Ctrl* they take on extra powers. The mouse is also useful for repositioning the cursor or scrolling the text. Insert mode, word wrap and right justify can all be disabled. Line length, normally 85 characters, can be set as high as 160 if you fancy using horizontal scrolling. Further documents can be opened and positioned in overlapping Gem style, and with reasonably sized documents you can have four open on the desk at the same time.

Other *File* options include *Print*, *Save*, *Save As* (which stores the currently se-

lected document under a new filename), and *Layout*. *Write* gives you the opportunity to save a marked block of the current document to a new file. A major flaw in the program reared its head while using this option. While on all other occasions a file is renamed with a *Bak* type if you try to save another file with the same name, the *Write* option seems to bypass this safety measure. *Read* is the complement of *Write*, loading the contents of the specified file at the cursor positioning the current document.

The next menu is *Edit*. *Find*, *Replace* and *Repeat Find* are fully implemented and there are also four moveable marks; you can dot these at strategic points in the document and then use *Goto Mark* to get there quickly. The *Block* menu allows you to define blocks for other menu options or in order to *Cut*, *Paste*, *Copy* and *Delete* them. The mouse can play a role in block marking: if the text falls completely inside a window then it can

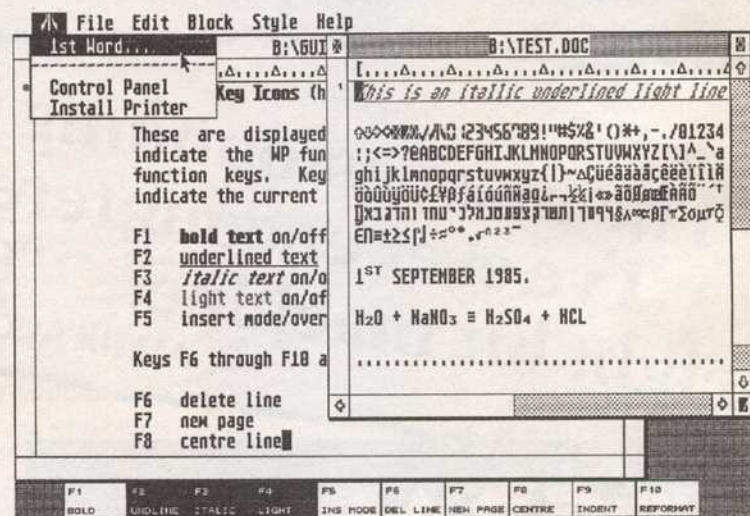
*Extra Help* which prompts you through the more complex operations.

Function Keys provide a few extra features – *New Page* forces a page break. On a hi-res monitor page, numbers are marked in the margin. You can also delete lines and use an *Indent*, which indents the rest of the entered text up to the next CR.

The maximum size of a text file is in the region of 76K – perhaps 8,000 words – but before this you begin to run out of memory for cut and paste operations. A good working size would be around 20 pages of A4 – and you could get four or more such files on one disc.

The *1st Word* disc holds a tutorial file to teach you editing sequences. Other files on the disc are concerned with printer installation – Hex files for common printers to be edited (by *1st Word*) to suit your own printer and then used by an installation program.

Using *1st Word* reveals it to be both friendly and fast, but I do have a few reservations. If you set the keyboard repeat rate to a reasonable speed for cursor movement, you can then get into trouble when deleting lines or indenting paragraphs. GST admits this, implying that Gem does not allow programs to halt



1st Word – thanks to Silica Shop for the picture

be marked by clicking the top left edge and "rubber-banding" to enclose the desired area. The currently marked block is shown as a shaded area.

*Style* is possibly the most interesting menu. You can select your typeface – *Bold*, *Italic*, *Light*, *Underline*, *Super* and *Subscript*, and also *Restyle* a marked block. One of the most pleasant features of *1st Word* is that text is actually displayed in its selected typeface, giving a good impression of the final product. *Reform* is also included on this menu to allow you to tidy up text after editing or changing the page width. The final menu offers help information and can enable

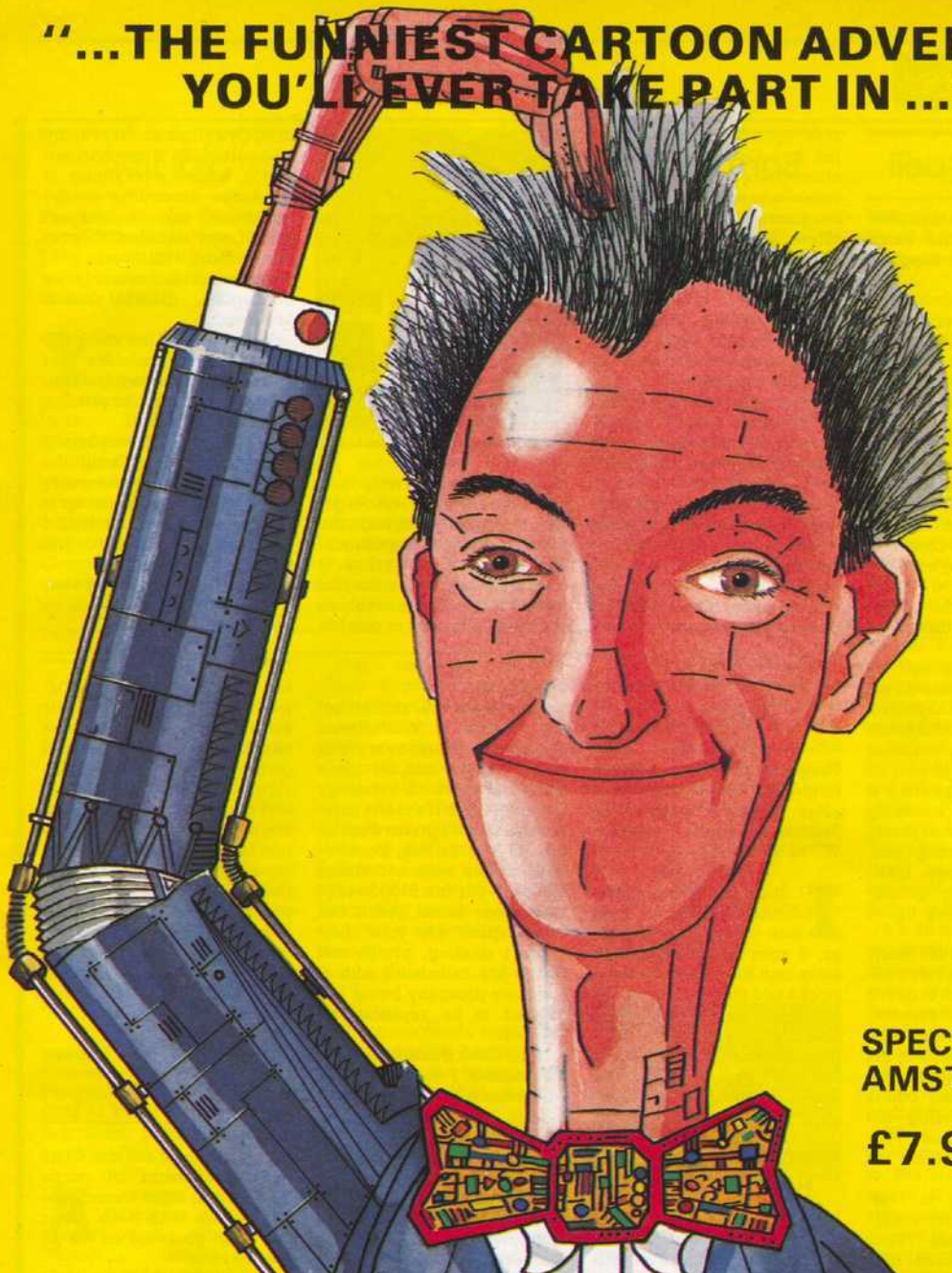
keyboard operations while they process a long-winded operation. One function that does seem to take time is moving long distances in the text, but this is only slow by comparison to most other features – reformatting and screen updates are remarkably fast. I also think it odd that a program of this class should lack a word counter.

*1st Word* is a fine wp package that makes excellent use of Gem; the few untidy ends which I have commented on are most likely the result of a final rush to take the place of *GemWrite*.

Next week, a look at *DB Master One* and *Megaroids*.



"...THE FUNNIEST CARTOON ADVENTURE  
YOU'LL EVER TAKE PART IN..."



SPECTRUM 48K  
AMSTRAD 464

£7.95

# SWEevo's WORLD



GARGOYLE  
SPECIAL EDITION

GARGOYLE GAMES LTD., 74 KING STREET, DUDLEY, WEST MIDLANDS DY2 8JH  
Telephone: (Sales) 0384 238777 (General) 0384 237222



## Under a spell

**Program Spellbreaker Micro** CBM 64 + Disc **Price** About £35.00 **Supplier** Infocom (Import).

The release of a new adventure from Infocom is always sheer delight for the keen adventurer, and its latest release is superb.

*Spellbreaker* is the last in the *Enchanter* trilogy and is also one of the most difficult adventures I have played.

The game starts in the Guild Hall of the Circle of Enchanters, amazing text only descriptions up to three screens long set the scene, and oh brother are things going wrong.

The magic spells cast by your fellow enchanters do not seem to be working anymore, a revolt by the inhabitants seems imminent, unless something is done to correct the situation. The meeting is in full swing when suddenly the speaker and everybody else in the room, except you, are turned into frogs, toads and newts; turning quickly you notice a shadowy figure leaving the Hall.

Armed with your trusty spellbook you must solve numerous problems in order to collect a number of mysterious white cubes, which will, in turn, help you complete the adventure. Some spells can be used many times, others only once, so finding out when and where to use your magic is also part of the game.

The vocabulary is massive. The parser will accept such commands as "Take the fish out of Belboz's ear then eat it" or "Read the scroll. Write 'Broken' on it. Open the garbage can and drop scroll into the can".

The game is also rich in humour, casting the mind probe spell at various creatures will reward you with very witty and humorous responses.

In conclusion, this is another one of those Infocom adventures worth buying an Atari or Commodore merely in order to play.

**Roger Garrett**



## Born again

**Program Deus Ex Machina Micro** Commodore 64 **Price** £9.95 **Supplier** Electric Dream Software.

Question: What do Frankie Howard, Jon Pertwee and Ian Dury have in common?

Answer: They all star in Electric Dream's release of Mel Croucher's haunting fantasy *Deus Ex Machina*, originally by Automata.

Automata took a gamble, with *Deus* - with it they were breaking new ground and invested a lot of money in the project which they hoped would lead to a new concept in computer software. It was

not to be - at £14.95 it was too expensive for the average punter to want to experiment with.

So now on a new label, how does the program stand up to the ravages of time? For those



of you unfamiliar with it, it comes as a two tape package, one the game program, the other a stereo soundtrack. Synchronised by using a countdown sequence the two tapes are used collectively to chronicle the story of one life

## Play bull

**Program The Market Micro** Enterprise **Price** £5.95 **Supplier** Entersoft Limited, 37 Bedford Square, London WC1B 3HW.

If this title first suggests *Albion Market* to you, look elsewhere: However, if your thoughts immediately turn to bulls and bears, stocks and shares, you're just the sort of speculator Entersoft are seeking with their stockbroker simulation. But don't buy yet! Consider the potential of your

investment.

First forget the 'simulation' tag - with a 'Wall Street Crash' on average every four months this would be more safely termed a strategy game. As such it's menu driven with initial options such as buying and selling, borrowing from the bank and taking advisors out for £100 meals! Once your initial grand has been spent on your first month's dealing, profits and losses are calculated with at least one company being liquidated to be replaced by another.

Is the stock market really so mechanical? I doubt it. There isn't even a good game here

## Battle weary

**Program Austerlitz Micro** Spectrum **Price** £9.95 **Supplier** M. C. Lothlorien, 56A Park Lane, Poynton, Cheshire SK12 1RE.

Just when some programmers are getting to grips with producing computer wargames that are more complex, more accurate, take longer to play and look sumptuous, Lothlorien have come up with a real throwback.

*Austerlitz* provides a simplified simulation of one of Napoleon's greatest set-piece victories. So simplified, indeed, that the most murder-

ous element of any Napoleonic army, the artillery, is completely neglected. (Furthermore, I might add, I found the play-balance badly skewed against cavalry who seemed unable to charge; shock-troops who can't shock, it's shocking.)

The French army has been reduced to six corps, each of three or four units. The map, which is quite small, is in two colours - vigorous blue and radioactive green, which, any chic games designer ought to know, together should never be seen.

There are, unfortunately, a few problems with the way the game plays. First is the way pieces follow move orders. Units will often take a circuitous route to objectives

in an Orwellian society run by computers. In a mechanised world where everything is produced according to the rule book, one machine rebelled and decided to produce a baby with its own personality. You control its conception, growth, health and death.

The games in the story are very simple and are not graphically stunning, but with the soundtrack create a unique experience.

A year on it hasn't really dated in any way, it's still the same strange haunting package it always was, but even at the cheaper price, it will, I think, only appeal to the minority.

**Andy Moss**



and you'll need lots of paperwork to keep track of your investments as only one month's previous prices are given - I thought micros were supposed to help with this sort of thing. It all looks very Basic-ally written and too dependant on random factors, not at all the sort of program Entersoft should be putting out now they are becoming established for quality. The most amusement I got was for the monthly report, 'Enterprise go into liquidation but Commodore are refloated.' Not prophetic, I hope!

**John Minson**



for no apparent reason. Units under command of corps leaders will often become so tangled up with each other that they go twice as far as they have to.

The way in which the Marshalls phrase their questions to Napoleon when they are unhappy with an order is always ambiguous. I have yet to work out if 'Yes' means 'follow my order' or 'do as you wish'.

Bright, quick and entertaining *Austerlitz* may be, rather like Napoleon's victory, but unlike the battles the Emperor fought and won, it is neither testing, accurate nor complex.

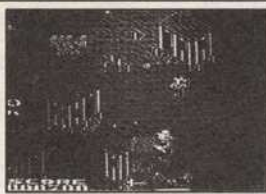
**Peter Berlin**





## Kill joy

**Program** *Rambo First Blood Part II* **Micro Spectrum Price** £8.95 **Supplier** Ocean Software, 6 Central Street, Manchester M2 5NS.



**Y**ou've seen the film. You've heard the jokes. And you've possibly already bought this. Yeah - Dumbo, President Ron's favourite fairy tale!

In the game you control geometric genius, Rhomboid, a sprite with a funny walk, who goes around killing lots of people. In short, the old *Commando* plot, but the arcade hit's wholesale slaughter has been replaced with a

little strategy. At first it's best to dodge or use a quiet weapon such as the bow, which you find scattered around the jungle along with a lot of other deadly litter. Then it's a B-line to the POWs and the helicopter.

Not that there's anything wrong with this scenario - so long as you ain't no commie pinko faggot - but in play it's all rather dull. Unlike *Bimbo*, the movie, there's rather too

little frantic blasting, and without that there's just not enough to generate adrenalin the way *Commando* does. And while the Vietnamese jungle is hardly *Habitat* designed, I'm sure it looks better than this tangle of squiggles. Anyhow, a third of the screen is a status window, which gives the gooks too much of a chance to sneak up on you. Nice music though!

Of course it's all proficient, being Ocean, but unlike *Frankie* - possibly the tie-in's finest hour - this looks like a second hand shoot 'em up but with too little shooting. I'd only play this again if you pushed me.

John Minson



## Ring o' Stars

**Program** *To Come Micro To Come* **Price** £15.95 **Supplier** Melbourne House, Castle House, Castle Yard, Richmond.

**I**n theory the biggest adventure programming task ever. Producing an adventure from *The Hobbit*, a fairly simple story, is one thing - doing the same to Tolkien's huge, complete masterpiece is quite another. It's taken Phillip Mitchell over 18 months to do it (well, the first part anyway - the second part is to be released in a year or so) and the first question must be: Has he managed to recreate the characters in Middle Earth as believable creatures and produce an atmosphere akin to the original Trilogy? The answer is yes, with a few reservations.

Looked at purely in scale, it is vast - full of descriptive text and over 200 locations to explore. This part details Frodo's hazardous trip to Rivendell - the first leg on his long journey to the Fire Mountain, the only place the Ring can be destroyed.

It's an impressive package requiring an enormous box to carry not only the two program cassettes but also the first book *The Fellowship of the Ring* and a manual. The screen display is very pretty, like pages from a book with little graphic heads to signify each Hobbit.

What about the reservations I mentioned? Compared to *The Hobbit*, the response speed is very slow indeed and rather ruins the atmosphere the text evokes - the other niggles are the pictures. I feel most pictures tend to ruin your own mental image of the story; in *Lord of the Rings* they serve no purpose and being rather ordinary in design tend to detract from one's own imagination. It would be nice if you could turn them off.

It must be said, though, that Melbourne House have tried to please everyone here, even down to supplying a beginners program and an extensive instruction booklet.

Andy Moss



## Pot black

**Program** *Steve Davis Snooker* **Micro QL Price** £14.95 **Supplier** CDS, Silver House, Silver Street, Doncaster DN1 1UL.

**C**DS are one of the larger software houses in the QL market with a conversion of its successful *Steve Davis Snooker*.

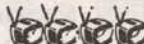
This simulated snooker match stays true to all the professional rules of snooker and simulates detailed aspects of snooker used in a real game, such as the amount of spin on the cue ball and the force exerted by the cue.

However, unlike other versions of this program, eg Spectrum, you may play against the computer at different skill levels. The highest level is almost impossible to beat.

The controls are the cursor keys to position your cue and the function keys for special features such as "Editing" the table. At the bottom of the screen, a menu keeps track of all the scores and the information necessary to play.

It would be fair to say that though the game is not original, it still deserves to do well.

Matthew Palmer



## Ballderline

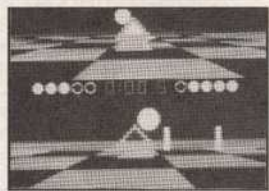
**Program** *Ballblazer* **Micro CBM 64 Price** £9.95 **Supplier** Activision, 15 Harley House, London NW1.

**A** strange one this. *Ballblazer* is futuristic football using two "Rotofoils", which roam about a grid playfield trying to hit a ball through two electro goalposts which get narrower each time you score until the mandatory

time is up.

There are reams and reams of scene-setting background material in the instructions but they can't hide the fact that the game is too simple and lacks any variation apart from the change in skill level.

There is a two-player option and I suppose the winner is the one who manages to stay awake at the end of it all. Nowadays, as with all games which rely on a one against one scenario, the screen is split showing both players' positions at the same time.



The graphics, what there are of them, are OK and the playfield scrolls quite smoothly, but I can't think of a reason to buy it.

Andy Moss



## Man of flint

**Program** *Yabba Dabba Doo* **Micro CBM 64 Price** £7.99 **Supplier** Quicksilver, 222 Regent Street, London.

**I**n an astonishing turn of events, a caveman named Fred Flintstone

cleared rocks and rubble in order to build a house. Bravely avoiding pterodactyls, turtles and dinosaurs, Fred, picked out rocks and began to fashion his home placing the rocks carefully.

With house completed, our hero takes his car and goes off to win Wilma.

This ancient account by

Quicksilver is one of the best games this year. The graphics cartoon quality and animation is brilliant.

As an arcade game it's immensely playable with many locations to explore.

Andy Moss





## Can you remember as far back as 1985? If not, we can jog your memory - with the results of the 1985 Popular Readers' Poll

**F**irstly, a big thank you to everyone who sent in their votes (sorry it wasn't in the centre pages). Last year, the Poll was almost entirely dominated by Ultimate and its offerings, but a year is a long time in computing, and 1985 was very different.

Although we didn't stipulate that you must vote for products released during 1985, we were quite concerned that the software releases at least, should be 'of the Year'.

### Program of the Year (Holder: Knight Lore - Ultimate)

This was really a two horse race between Elite and Way of the Exploding Fist, which, as far as you were concerned, stood out among the rest. Even after we discounted Elite votes from BBC owners, who voted for it in large numbers last year, it still managed to pull decisively clear. Just about every Amstrad owner voted for Sorcery or Sorcery Plus.

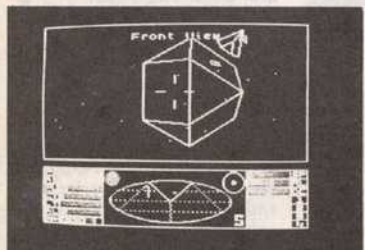
1 Elite (Firebird)

2 Way of the Exploding Fist (Melbourne House)

3 Sorcery Plus (Virgin)

Honourable mentions: Marsport (Gargoyle Games) and The Fourth Protocol (Hutchinson)

Incidentally, had we counted Sorcery and Sorcery Plus as one program, it would have made no difference to the final verdict.



Elite from Firebird

### Arcade Game of the Year (Holder: Knight Lore)

Always a tricky category, since 'Arcade' can mean anything from The Arcades to graphics/joysticks programs with an adventurous feel. Anyway, we let you decide, and once again Elite and Fist led the field. This time, Fist very nearly caught up.

1 Elite (Firebird)

2 Way of the Exploding Fist (Melbourne House)

3 Commando (Elite)

Honourable mentions: Sorcery Plus (Virgin) and Fairlight (The Edge)

### Adventure of the Year (Holder: Lords of Midnight)

A large number of titles were voted for here, but the winner, perhaps surprisingly due to its December release, was never in doubt.

1 Lord of the Rings book one (Melbourne House)

2 The Fourth Protocol (Hutchinson)

3 Bored of the Rings (Silversoft/Delta 4)

Honourable mentions: Marsport (Gargoyle Games) and Red Moon (Level 9)

### Business Program of the Year (Holder: Tasword 2)

There's no doubting the business use to which home micros are put to the most - word processing; 69% of all votes were for word processors of one kind or another, with Tasword in its many guises, being a clear favourite. Gary Gregg claimed that OCP's Word Manager 'beats Tasword by miles' - not many people agreed with him. Having discounted votes for Tasword 2 on the Spectrum, and Mini Office (Database Publications) - and not just a word processor) the picture looked like this:

1 Mini Office (Database Publications)

2 Tasword (464D, 6128) (Tasman)

3 Masterfile (Campbell Systems)

### Utility Program of the Year (Holder: The Quill)

Despite the number of games designers released this year, it was graphics packages that were 1985's 'in' things, according to Pollsters. But this section produced a clear winner:

1 The Art Studio (OCP)

2 The Artist (Softtechnics)

3 Graphic Adventure Creator (Incentive)

### Peripheral of the Year (Holder: Quickshot II joystick)

Not so many joysticks this year, but plenty of modems, although unfortunately there were too many different brands voted for to make much impact on the top three. No doubt about the winner, though.

1 AMX mouse (AMS)

2 Spectrum (Cheetah Marketing)

3 DMP 2000 printer (Amstrad)

### Best Software House (Holder: Ultimate)

Ultimate won this section ridiculously easily last year, and there are still plenty of Ultimate fans out there rooting for the company. This was probably the most closely fought section in the Poll.

1 Melbourne House

2 Ultimate

3 Firebird

Honourable mentions: Gargoyle Games and Virgin

### Best Programmer (Holder: Matthew Smith)

Matthew Smith, having lain dormant for much of the year, wasn't really in the running this time. Jeff Minter still commands as loyal a following as ever, but it was nice to see Gargoyle, having been honourably mentioned quite a lot so far, take this one.



Roy Carter and Greg Follis

1 Roy Carter and Greg Follis (Dun Darach, Marsport)

2 Denton Designs (Gift from the Gods, Shadowfire, Frankie, Sweevo's World)

3 Jeff Minter (Psychodelia, Cosmic War Toad, Batallyx, Yak's Progress compilation)

3 Virgin Gang of Five (Sorcery, Sorcery Plus)

Honourable mentions: David Crane (Activision) and Bo Jangeborg (The Edge)

### Most Promising New Company (Holder: Beyond)

Problem here - the company gaining twice as many votes as its nearest rival came fifth in this section last year, and so can't really be described as new. However, we reckoned it was what the pollsters wanted - perhaps Firebird is just taking time to mature?

1 Firebird

2 Imagine 84

3 Electric Dreams

Honourable mentions: Rainbird and Odin

### Most Overrated Software House (Holder: Imagine - without the '84')

Surely some connection between this top



## Readers' Poll



three? For Ultimate, this year's Poll has been very much a case of swings and roundabouts.

- 1 Ultimate/Play the Game (how mighty are the fallen)
- 2 Ocean
- 3 US Gold

### Computer Program You Most Regret Buying

(Holders: *War of the Worlds* and *Great Space Race*)

Once again, one person's fave is another's anathema.

*Fist, Bored of the Rings, Graphic Adventure Creator, Alien 8*, all furiously nominated by some people. This section turned into a surprisingly close contest.

- 1 *A View to a Kill* (Domark)
- 2 *Starion* (Melbourne House)
- 3 *The Secret Diary of Adrian Mole* (Mosaic)

### Most Exciting Computer

(Holder: Amstrad CPC 464)

Another two horse race here - would it

be the CPC 6128, in the shops and gaining favourable reviews all over the place, or Commodore's Amiga, technically astounding, but still only available 3000 miles away? In the end, the Pollsters sided with availability.

- 1 Amstrad CPC 6128
- 2 Commodore Amiga
- 3 Atari 520ST

Honourable mentions: Amstrad PCW 8256

### Worst Computer

(Holder: MSX)

MSX has made few friends in 1985, if our Poll is anything to go by, although Commodore's ill-fated C16 and Plus/4 made a brave bid for the title.

- 1 MSX
- 2 Commodore C16
- 3 Commodore Plus/4

### Worst Licensing Deal

(Holder: *War of the Worlds*)

There were so many licensing deals in 1985, it was sometimes difficult to tell what was licensed and what wasn't. The Pollsters were left in no doubt, though. Companies should evidently beware of film tie-ups.

- 1 *A View to a Kill* (Domark)
- 2 *Ghostbusters* (Activision) (Commodore 64 owners discounted)
- 3 *Rambo* (Ocean)

## The Secret Diary of Robin of Sherlock

aged 34 $\frac{3}{4}$



January 1986

### 1 Wednesday

New Year's Day - Bank Holiday

It was dark when I finally came round. It was still dark when I opened my eyes so I figured that maybe I must be under a skirt. Sure enough, it was the one Marian had dumped on me at 3am when I started snoring. It's a detective's business to know these things!

Gee, that had been some party. It was 6am when I came downstairs and the celebration was still going. There was a nasty smell coming from the kitchen so I thought maybe I'd better go take a look-see.

I've got a nose like a hawk so it wasn't long before I found out what was polluting the air. Watson had gone off, strange 'cos he'd been dead less than a week. This came as a blow! It looked like being back to the ol' peanut butter sandwiches again.

I made myself a coffee, black - no sugar, and went to see how the party was going.

I opened the living room door and the music and laughter coming from inside suddenly stopped! A slight chill ran through the house and the vague aroma of fast food wafted across the room. I was staggered, the room which sounded like a party was empty, quiet and deserted. A thin fog was crawling across the floor towards me and the whole joint had suddenly developed a real evil presence. I was just running for the door when a knife thudded into the wall beside me: It had a note attached to it so I grabbed it and set out to find someone who could read it to me.

### 2 Thursday

Bank Holiday In Scotland

Still looking for someone to read the note to me.

### 3 Friday

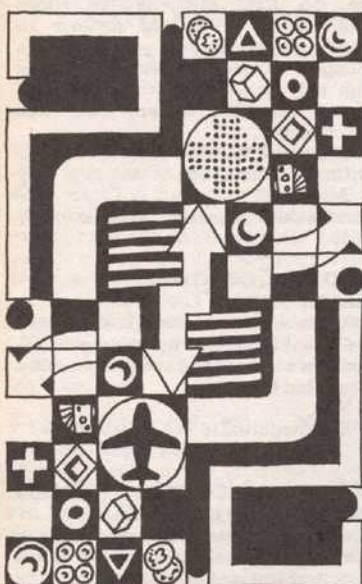
Going through the forest, I finally found someone who could read the worrying bit of parchment, a humble woodcutter from across the river. The note read, "Trouble me no more or you will share the fate of your party friends! It was from somebody called 'Anonymous'. I couldn't remember anyone of that name and the only clue I had was what was written on the back of the parchment.

"Robin of Sherlock - £7.95 Spectrum 48k, Amstrad. Available from Silversoft or any half-way decent software retailer."

What could it all mean? If I told anyone, would they buy it? More importantly, will you?

It looked like I'd have to tune in next week to find out...





## FUNCTION PLOT

by E Page

For those of you who are involved with 'O's and 'A's' in Maths, help has arrived in the form of this program which plots the shapes of most functions of the form  $y=f(x)$ .

The program makes use of the EVAL function and will, for example, allow you to plot  $x \sin x$  in a matter of seconds. A useful device for taking the labour out of getting to grips with difficult shapes.

The program is 'user friendly' and you should have no problems in plotting your favourite functions. Be prepared to play around with the scales to get the best results.

Pressing Break will abort the plot and return you to the start of the program.

### Program Notes

10-20 REM\*\*

30-130	Function keys are programmed
140	Disable ESCAPE
150	Loop line for repeats; set Mode; switch off cursor
160	Error trap
170-210	Title screen
250-340	Instructions screen (a)
360-540	Examples screen (b)
560-650	Input instructions (c)
670-840	Input function and scaling
850-940	Main program
950-1080	Error statements and repeat instructions
1090-1130	DEFFPROCneg
1140-1180	DEFFPROCzero-one
1190-1230	DEFFPROCpos
1240-1340	DEFFPROCaxes
1350-1450	DEFFPROCequation
1460-1480	DEFFPROCreturn
1490-1530	DEFFPROCget-key

```

10REM**E.B.PAGE**
20REM** C.1985 **
30KEYO X-SIN50:MS0:MY:M-10:MY:M10:M
40KEY1 -X-SIN50:MS0:MY:M-10:MY:M10:M
50KEY2 X^2+2X-15:MS0:M10:MY:M-10:MY:M10:M
60KEY3 (X-2)*(X+6)*(X+2):MS0:M10:MY:M-10:MY:M10:M
70KEY4 X*SINX:MS0:MS0:MY:M-10:MY:M10:M
80KEY5 X*SINX*SINX
90KEY6 X*COSX*COSX
100KEY7 X*SINX*COSX
110KEY8 LOG(X):MS0:MS00:NN:NN:M10:M
120KEY9 SQR(100-X^2)
130KEY100.D:NRUN:M
140F1229,1
150CLS:CLARA:MODE7:VDU23:11,0;0;0;0
160 ON ERROR GOTO 950
170PRINTTAB(1,10)CHR#133;".....FUNCTIONS.....!!"
180PRINTTAB(1,11)CHR#133;".....FUNCTIONS.....!!"
190PRINTTAB(3,13)STRINGS(34," ")
200PRINT TAB(5,20)CHR#130;"PRESS SPACE BAR TO CONTINUE"
210IF GET$="" THEN 220 ELSE 170
220CLS:VDU23:11,0;0;0;0
230PRINT TAB(3,13)STRINGS(34," ")
240CLS
250PRINT TAB(12,4)CHR#129;"INSTRUCTIONS"
260PRINT TAB(1,6)CHR#131;"THIS PROGRAMME PLOTS MOST FUNCTIONS"
270PRINT TAB(1,7)CHR#131;"OF THE FORM Y=f(X)."
280PRINT TAB(1,8) CHR#131;"YOU CAN INPUT YOUR FUNCTION AS:"
290PRINT TAB(1,10)CHR#134;"Y=X^2-2X-8 OR AS Y=(X+2)*(X-4),etc"
300PRINT TAB(7,12)CHR#133;"VALUES PLOTTED: X TO +X"
310PRINT TAB(8,14)CHR#130;"YOU CHOOSE THE VALUES!"
320PRINT TAB(7,16)CHR#131;"KEEP BETWEEN -10 AND +10"
330PRINT TAB(10,20)CHR#136:CHR#131:CHR#157:CHR#132:SPC(3);"PRESS SPACE BAR TO C
ONTINUE"
340IF GET$="" THEN 350 ELSE250
350CLS
360PRINT TAB(8,2)CHR#131;"*****EXAMPLES*****"
370 PRINTTAB(3,4)CHR#130;"40-X-S"
380 PRINTTAB(25,4)CHR#131;"(CHAINED)"
390 PRINTTAB(3,6)CHR#130;"f1=X-S"
400 PRINTTAB(25,6)CHR#131;"(CHAINED)"
410 PRINTTAB(3,8)CHR#130;"f2=X^2+2X-15"
420 PRINTTAB(25,8)CHR#131;"(CHAINED)"
430PRINTTAB(3,10)CHR#130;"f3=(X-2)*(X+6)*(X+2)"
440 PRINTTAB(25,10)CHR#131;"(CHAINED)"
450PRINTTAB(3,12)CHR#130;"f4=X*SINX"
460 PRINTTAB(25,12)CHR#131;"(CHAINED)"
470PRINTTAB(3,14)CHR#130;"f5=X*SINX*SINX"
480PRINTTAB(3,16)CHR#130;"f6=X*COSX*COSX"
490PRINTTAB(3,18)CHR#130;"f7=X*SINX*COSX"

```

```

500PRINTTAB(3,20)CHR#130;"f8=LOG(X)"
510 PRINTTAB(25,20)CHR#131;"(CHAINED)"
520PRINTTAB(3,22)CHR#130;"f9=SQR(100-X^2)"
530PRINT TAB(10,24)CHR#136:CHR#135:CHR#157:CHR#129:SPC(3);"PRESS SPACE BAR TO C
ONTINUE"
540IF GET$="" THEN CLS ELSE350
550CLS
560PRINT TAB(0,6)CHR#134;"YOU CAN USE FUNCTION KEYS 0 TO 8 TO"
570PRINT TAB(0,7)CHR#134;"ENTER DEMONSTRATION PROGRAMMES OR YOU"
580PRINT TAB(0,8)CHR#134;"CAN TYPE IN YOUR OWN FUNCTION"
590PRINT TAB(0,12)CHR#131;"PRESS SPACE BAR TO RETURN TO EXAMPLES"
600PRINT TAB(0,16)CHR#130;"PRESS TAB TO RETURN TO INSTRUCTIONS"
610PRINT TAB(0,20)CHR#133;"PRESS RETURN TO ENTER THE FUNCTION"
620PROCget_key
630IF K=609 THEN 240
640IF K=620 THEN 350
650IF K=608 THEN 660 ELSE350
660CLS:PROCreturn
670INPUT TAB(0,6)"YOU CAN USE FUNCTION KEYS 0 TO 8 TO ENTER DEMONSTRATION
PROGRAMMES OR YOU CAN TYPE IN YOUR OWN FUNCTION"
Y="68
675IF B="" THEN670
680CLS:PROCreturn
690INPUT TAB(0,10)"PLEASE ENTER THE SCALE FOR THE X-AXIS; THIS SHOULD BE BETW
EEN 50 AND 300"SPC(62);scale_x
700IF scale_x<50 OR scale_x>300 THEN100ELSE710
710CLS
720PROCreturn
730INPUT TAB(1,10)"NOW ENTER THE SCALE FOR THE Y-AXIS;THIS SHOULD BE BETWEEN 0
.5(FOR PENTICS) TO 500 (FOR SINE CURVES). SUGGEST 10 FOR QUADRATICS",SPC(86)
;scale_y
740IF scale_y=0 THEN990 ELSE750
750CLS:PROCreturn
760INPUT TAB(0,10)"DO YOU WANT TO PLOT NEGATIVE VALUES OF X(INCLUDING 0)? TYPE
Y OR N"SPC(72);C$
770IF C$="Y" THEN 780 ELSE900
780CLS:PROCreturn
790INPUT TAB(0,10)"ENTER THE VALUE YOU WANT FOR THE NEGATIVE X-RANGE, P
ROGRAMME WILL PLOT VALUES OF Y FOR X=0 TO THE VALUE YOU TYPE IN"SPC(90);N
800CLS:PROCreturn
810INPUT TAB(0,10)"DO YOU WANT TO PLOT FOR VALUES OF X=0 TO 1? IF YOU DO TP
E Y OR N"SPC(70);T$
820IF T$="Y" THEN PROCzero-one ELSE930
830CLS:PROCreturn
840INPUT TAB(0,10)"ENTER THE VALUE YOU WANT FOR THE POSITIVE X-RANGE, P
ROGRAMME WILL PLOT VALUES OF Y FOR X=1 TO THE VALUE YOU TYPE IN"SPC(90);P
850CLS
860MODE1
870VDU23:11,0;0;0;0
880CLS

```



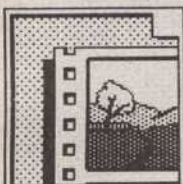
# FLEET STREET

CITY OF LONDON EC4

## Editor

### A QUICK TOUR ROUND THE DEPARTMENTS

Each Fleet Street Editor page is constructed as a series of panels, with up to 8 panels per A4 page. Here's where you construct those panels:



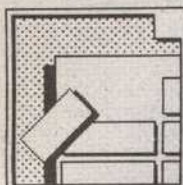
**GRAPHICS LIBRARY**  
200K (about 400 pieces) of ready-to-use art-illustrations, symbols, and display typefaces which can be incorporated into your own work.



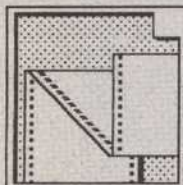
**STUDIO**  
Where you modify existing art from the Library or your own collection, or create your own. All the graphics in the Library were created here.



**COPYDESK**  
Input your text here, using either the program's word processor or existing View or Wordwise files, and watch it wrap automatically round your graphics. Use different fonts, too.



**PAGE MAKE-UP**  
Define the format for your page and construct it from the catalogue of panels you've built up. Some panels are provided ready-made for you to experiment with.



**PREVIEW AND PRINT**  
Preview a reduced representation of your completed page on screen, approve it, and send it to your printer using one of the built-in printer-drivers - you can write your own, too.



**ADMINISTRATION**  
Set up the program to suit your system configuration, format disks, integrate graphics from most Mode 4 programs, and further manipulate Fleet Street Editor files.

"FLEET STREET EDITOR is THE package for anyone with access to a BBC Micro who wants to produce printed materials that include graphics... The Graphics Library is a marvellous idea... The Studio is a really creative area with all the tools you need... Without a doubt, this is a wonderfully powerful and flexible package... FLEET STREET EDITOR has been cleverly conceived and brilliantly executed."

- Dave Fletcher, Educational Computing

WRITE FOR BROCHURE AND FURTHER DETAILS

**MIRRORSOFT LTD**  
FREEPOST BS4382, Paulton,  
Bristol BS18 5BR

# FLEET STREET EDITOR

Issue No. 1

January 1986

GIVES YOU WORDS ... AND PICTURES

In any way you wish - together

or separately ...



If you find yourself in the newsheet hotseat...

Fleet Street Editor is the personal publishing package you must have.



You can use text in many ways: regular, bold, italicized and, of course, with fancy

All this, and more, can be done in this one package - with nothing extra to buy!

**Headlines & Titles**  
in your text.

**Mirrorsoft**





```

890PROCaxes
900IF C#="Y" THEN PROCneg ELSE 910
910IF T#="Y" THEN PROCzero_one ELSE 920
920PROCpos
930PROCequation
940END
950CLS:MODE7:VDU23;11,0;0;0;0
960PRINTTAB(0,11)CHR#130;"YOU EITHER HIT A WRONG KEY OR TRIED TO"
970 PRINTTAB(0,13)CHR#130;"CALCULATE THE LOG OF A NEGATIVE NUMBER"
980 PRINTTAB(0,15)CHR#130;"OR NUMBER TOO BIG!":V=INKEY(500):GOTO1010
990CLS:PRINT TAB(13,10)"V_SCALE=0!":GOTO1020
1000CLS:PRINT TAB(8,12)"X_SCALE OUT OF RANGE!":GOTO 1020
1010CLOUR2
1020PRINT:PRINT TAB(12,23)CHR#131;"START AGAIN!"
1030G=INKEY(500):GOTO150
1040CLS:PRINT TAB(13,15)"ARE YOU SURE?"
1050PRINT TAB(14,18)" Y OR N "
1060 IF GET#="Y" THEN 1070 ELSE 150
1070CLS:PRINT TAB(12,15)"BYE_BYE FOR NOW"
1080L=INKEY(300):CLS:END
1090 DEF PROCneg
1100FOR X=N TO 0 STEP1/scale_x
1110PLOT69,X*scale_x,scale_y*EVAL(A#)
1120NEXT
1130ENDPROC
1140DEFPROCzero_one
1150FOR X=0 TO 1 STEP1/scale_x
1160PLOT69,X*scale_x,scale_y*EVAL(A#)
1170NEXT
1180ENDPROC
1190DEFPROCpos
1200 FOR X= 1 TO P STEP1/scale_x
1210PLOT69,X*scale_x,scale_y*EVAL(A#)
1220NEXT
1230ENDPROC
1240DEFPROCaxes
1250GCOL0,2
1260PRINT TAB(19,1)"Y":PRINT TAB(0,15)"X"
1270 MOVE640,0:DRAW640,1024:MOVE1280,512:DRAW0,512
1280VDU29,640;512;
1290FOR S=-500 TO 500 STEP 100:MOVES,0:DRAWS,10:NEXTS
1300FORM=2 TO 640/scale_x STEP 2
1310PRINTTAB(20,16)"0"
1320 PRINTTAB(20+INT(M*20/(640/scale_x)),16);M:PRINTTAB(18-INT
(M*20/(640/scale_x)),16);-M
1330NEXT M
1340ENDPROC
1350DEFPROCequation
1360CLOUR1
1370VDU19,1,2,0,0,0
1380PRINTTAB(1,25)"Y="A#
1390PRINT TAB(1,26)STRING$(LEN(A#)+2," ")
1400CLOUR3
1410PRINT TAB(11,31)"THEN PRESS RETURN"
1420CLOUR2
1430INPUT TAB(4,28)"WANT ANOTHER GO? TYPE Y OR N";E#
1440IF E#="Y" THEN 150 ELSE 1040
1450ENDPROC
1460DEFPROCreturn
1470PRINT TAB(7,20)CHR#134;"THEN PRESS RETURN"
1480ENDPROC
1490DEFPROCget_key
1500REPEAT
1510K=GET
1520UNTIL K=420 OR 609 OR 60D
1530ENDPROC

```

## COMPUTER GRAPHICS DESIGNER

We have an immediate requirement for a graphics designer with artistic flair and a strong interest in home computers. Responsibilities will include the support of a range of projects, designing both static and dynamic graphics of high quality. Applicants should be able to demonstrate a good understanding of graphics design, with a portfolio of previous work if possible.

## PROGRAMMERS

Several vacancies exist for proficient machine code programmers with an extensive knowledge of Z80, 6502 & 68000 assembly language experience. A knowledge of C would be an advantage. Applicants should hold qualifications of HNC or degree level or have equivalent experience. Creative talent, self-motivation, and a strong interest in home computers are essential.

We offer highly competitive salaries, according to experience. Excellent working conditions.



*Advancing the Art  
of Simulation*  
DIGITAL  
INTEGRATION

Please send c.v. to:-  
For the attention of Dave Marshall  
DIGITAL INTEGRATION LTD  
Watchmoor Trade Centre  
Watchmoor Road  
Camberley, Surrey, GU15 3AJ  
Tel. 0276 684959



## Code Words

**Name: Philip Mitchell**

**Programmer of The Hobbit and Lord of the Rings**

**I** can't remember the first computer I ever used, but it was a very small machine and we built it at high school. It was based on a now defunct chip, the Philips 2650. That was about nine years ago.

I had some courses in programming in Fortran and then taught myself assembly language. Whilst at Melbourne University, I saw an ad for a part-time programmer at Melbourne House - I've been there ever since.

I don't really think there is an easy way for a newcomer to learn assembly language. You have to be prepared to persevere.

When developing programs, I mainly use a number of packages developed in house. In particular we have drawing programs and write editors for the Commodore 64. Most of the utilities I use are concerned only with graphic development.

At home I have a Spectrum, an IBM PC-XT, and a machine I built myself which is really a Tandy model 1 in disguise. It's hard to comment on the work of other programmers because being in Australia,



lia, I am rather out of touch with the latest developments, but I have enormous respect both for the way *Manic Miner* was done and the imagery that went into *3D Ant Attack*.

The best thing I've done is *Lord of the Rings*, though it was a team achievement - it represents a big effort on everyone's part. Certainly *Lord of the Rings* is the best adventure game Melbourne House has released.

**Name: Philip Mitchell**

**Age: 25**

**Favourite Programs:**

The best adventure I ever saw was *Classic Adventure* and I still rate it. I also like *Zork*, although I don't get much of a chance to play adventures. I'm not co-ordinated enough to play arcade games, but I've always liked *Manic Miner*.

**Favourite Machines:**



I don't rate any machine particularly, it all depends on what you want to do. For games, the Commodore 64 is probably best. For an all round general purpose machine, the Amstrad would be my choice.

**Softography**

*Hobbit*, *Sherlock*, *Lord of the Rings*, *Mugsy*, *Penetrator* and *Melbourne Draw*.

**Hobbies**

At the moment I'm planning my wedding. My fiancée is an outdoor sort of person so a lot of my spare time is spent on beaches or skiing and rock climbing.



# Smash Hits for '86!

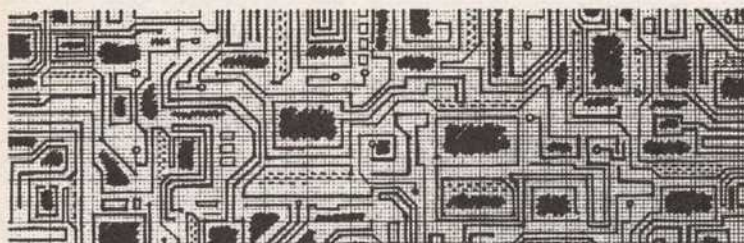
THE BEST TITLES FOR ALL  
**48k ATARI  
400/800/XL/XE  
COMPUTERS**

**ATARI SMASH HITS  
VOLUMES 1-4  
ALL ONE PRICE EACH**

**£9.95 cassette    £12.95 diskette**

Available now from your local Atari dealer or available  
**POST FREE from: ENGLISH SOFTWARE,  
1 North Parade, Manchester M60 1BX.  
Tel: 061-835 1358**





# RANDOM ACCESS

by Brian Cadge

**P**art Two of simulated random access files on the 464 starts right off with syntax details of the new commands available to Basic.

The **:DWRITE** command takes three parameters; these are, the filename, the offset at which to start writing in the file, and the string of characters to be written. The offset is usually the record number less one, times the record length. For simplicity, I suggest you always use a function similar to **FNr** in the demonstration program.

The number of characters written is taken from the length of the buffer string, this is why it must be padded out to the record length. A typical **:DWRITE** command might look like this;

```
f$ = "PCW01.DAT"
```

```
buf$ = "The text to go to the file, padded to the rec len"
```

```
:DWRITE, @f$, fnr(2), @buf$
```

This would write out record two. Obviously records can be written out in any order.

The **:DREAD** command has the same syntax as the **:DWRITE** command, that is, filename, followed by offset at which to start reading, followed by buffer string. In this case the buffer string must

be equal to the record length and is the number of characters read from the file. So to read back the record we saved about into the string **buf\$**, the sequence would be;

```
buf$ = string$(rec.len, 32)
```

```
:DREAD, @f$, fnr(2), @buf$
```

If this all seems rather complicated it will become much clearer by studying the demonstration program (printed last week). A final point to the Basic user, a number of errors can occur, if, for instance, you try to read a record number outside the range of the file, or you give the wrong number of parameters to a command. In each case a clear error message is printed and the program halts with an error number 31. Basic calls this an Unknown Error, and as it never normally occurs, you can check for it in your error trapping routines. The files created by the **Create** command can be erased as normal using the **ERA** command. It is not advisable to try and read them using the normal **INPUT#9**, as there are no 'CR' characters at the end of a record, and unpredictable effects may occur.

The assembly language listing is included to illustrate how the program

actually works. It should be of interest to anyone who wants to use the DOS from machine code, as it demonstrates reading and writing files, as well as using the Amdos RSX's from machine code (eg, ERA, REN and DISC). The source code is commented and should be fairly straightforward to understand. The method of simulating random access is to use Amdos serial files, which are opened, read or written to, and closed within each command. A **DWRITE** command actually creates a temporary file called "TEMP.RAN" which is never seen by the Basic user as it is deleted before returning to Basic. This simulated random access is not quite as fast as true random access files, but the latter would be very difficult, if not impossible, to implement using Amdos. However, the method used is much quicker and compact than trying to simulate random access from Basic.

The technique used to return an error to the Basic is to load the E register with the error number required, and then to call the error routine in the Basic Rom directly by its physical address (\$CA94), having first selected and enabled the Basic Rom.

```

10 :
20 : Simulated random access disk files
30 :
40 :
50 : ORG 37001
60 : ENT #
70 : LD HL,0700F
80 : CHL #0001
90 : RET
100 : CTAB:
110 : JP 0700F
120 : JP 0700F
130 : JP 0700F
140 : CTAB:
150 : DEFN "D"=128
160 : DEFN "Q"=128
170 : DEFN "E"=128
180 : DEFN "C"=128
190 : DEFN "F"=128
200 : DEFN "B"=128
210 : BASIC:
220 : LD C,B
230 : CHL #000F
240 : LD HL,0000
250 : LD HL,0000
260 : LD HL,0000
270 : LD HL,0000
280 : LD HL,0000
290 : LD HL,0000
300 : LD HL,0000
310 : LD HL,0000
320 : LD HL,0000
330 : LD HL,0000
340 : LD HL,0000
350 : LD HL,0000
360 : LD HL,0000
370 : LD HL,0000
380 : LD HL,0000
390 : LD HL,0000
400 : LD HL,0000
410 : LD HL,0000
420 : LD HL,0000
430 : LD HL,0000
440 : LD HL,0000
450 : LD HL,0000
460 : LD HL,0000
470 : LD HL,0000
480 : LD HL,0000
490 : LD HL,0000
500 : LD HL,0000
510 : LD HL,0000
520 : LD HL,0000
530 : LD HL,0000
540 : LD HL,0000
550 : LD HL,0000
560 : LD HL,0000
570 : LD HL,0000
580 : LD HL,0000
590 : LD HL,0000
600 : LD HL,0000
610 : LD HL,0000
620 : LD HL,0000
630 : LD HL,0000
640 : LD HL,0000
650 : LD HL,0000
660 : LD HL,0000
670 : LD HL,0000
680 : LD HL,0000
690 : LD HL,0000
700 : LD HL,0000
710 : LD HL,0000
720 : LD HL,0000
730 : LD HL,0000
740 : LD HL,0000
750 : LD HL,0000
760 : LD HL,0000
770 : LD HL,0000
780 : LD HL,0000
790 : LD HL,0000
800 : LD HL,0000
810 : LD HL,0000
820 : LD HL,0000
830 : LD HL,0000
840 : LD HL,0000
850 : LD HL,0000
860 : LD HL,0000
870 : LD HL,0000
880 : LD HL,0000
890 : LD HL,0000
900 : LD HL,0000
910 : LD HL,0000
920 : LD HL,0000
930 : LD HL,0000
940 : LD HL,0000
950 : LD HL,0000
960 : LD HL,0000
970 : LD HL,0000
980 : LD HL,0000
990 : LD HL,0000
1000 : LD HL,0000
1010 : LD HL,0000
1020 : LD HL,0000
1030 : LD HL,0000
1040 : LD HL,0000
1050 : LD HL,0000
1060 : LD HL,0000
1070 : LD HL,0000
1080 : LD HL,0000
1090 : LD HL,0000
1100 : LD HL,0000
1110 : LD HL,0000
1120 : LD HL,0000
1130 : LD HL,0000
1140 : LD HL,0000
1150 : LD HL,0000
1160 : LD HL,0000
1170 : LD HL,0000
1180 : LD HL,0000
1190 : LD HL,0000
1200 : LD HL,0000
1210 : LD HL,0000
1220 : LD HL,0000
1230 : LD HL,0000
1240 : LD HL,0000
1250 : LD HL,0000
1260 : LD HL,0000
1270 : LD HL,0000
1280 : LD HL,0000
1290 : LD HL,0000
1300 : LD HL,0000
1310 : LD HL,0000
1320 : LD HL,0000
1330 : LD HL,0000
1340 : LD HL,0000
1350 : LD HL,0000
1360 : LD HL,0000
1370 : LD HL,0000
1380 : LD HL,0000
1390 : LD HL,0000
1400 : LD HL,0000
1410 : LD HL,0000
1420 : LD HL,0000
1430 : LD HL,0000
1440 : LD HL,0000
1450 : LD HL,0000
1460 : LD HL,0000
1470 : LD HL,0000
1480 : LD HL,0000
1490 : LD HL,0000
1500 : LD HL,0000
1510 : LD HL,0000
1520 : LD HL,0000
1530 : LD HL,0000
1540 : LD HL,0000
1550 : LD HL,0000
1560 : LD HL,0000
1570 : LD HL,0000
1580 : LD HL,0000
1590 : LD HL,0000
1600 : LD HL,0000
1610 : LD HL,0000
1620 : LD HL,0000
1630 : LD HL,0000
1640 : LD HL,0000
1650 : LD HL,0000
1660 : LD HL,0000
1670 : LD HL,0000
1680 : LD HL,0000
1690 : LD HL,0000
1700 : LD HL,0000
1710 : LD HL,0000
1720 : LD HL,0000
1730 : LD HL,0000
1740 : LD HL,0000
1750 : LD HL,0000
1760 : LD HL,0000
1770 : LD HL,0000
1780 : LD HL,0000
1790 : LD HL,0000
1800 : LD HL,0000
1810 : LD HL,0000
1820 : LD HL,0000
1830 : LD HL,0000
1840 : LD HL,0000
1850 : LD HL,0000
1860 : LD HL,0000
1870 : LD HL,0000
1880 : LD HL,0000
1890 : LD HL,0000
1900 : LD HL,0000
1910 : LD HL,0000
1920 : LD HL,0000
1930 : LD HL,0000
1940 : LD HL,0000
1950 : LD HL,0000
1960 : LD HL,0000
1970 : LD HL,0000
1980 : LD HL,0000
1990 : LD HL,0000
2000 : LD HL,0000
2010 : LD HL,0000
2020 : LD HL,0000
2030 : LD HL,0000
2040 : LD HL,0000
2050 : LD HL,0000
2060 : LD HL,0000
2070 : LD HL,0000
2080 : LD HL,0000
2090 : LD HL,0000
2100 : LD HL,0000
2110 : LD HL,0000
2120 : LD HL,0000
2130 : LD HL,0000
2140 : LD HL,0000
2150 : LD HL,0000
2160 : LD HL,0000
2170 : LD HL,0000
2180 : LD HL,0000
2190 : LD HL,0000
2200 : LD HL,0000
2210 : LD HL,0000
2220 : LD HL,0000
2230 : LD HL,0000
2240 : LD HL,0000
2250 : LD HL,0000
2260 : LD HL,0000
2270 : LD HL,0000
2280 : LD HL,0000
2290 : LD HL,0000
2300 : LD HL,0000
2310 : LD HL,0000
2320 : LD HL,0000
2330 : LD HL,0000
2340 : LD HL,0000
2350 : LD HL,0000
2360 : LD HL,0000
2370 : LD HL,0000
2380 : LD HL,0000
2390 : LD HL,0000
2400 : LD HL,0000
2410 : LD HL,0000
2420 : LD HL,0000
2430 : LD HL,0000
2440 : LD HL,0000
2450 : LD HL,0000
2460 : LD HL,0000
2470 : LD HL,0000
2480 : LD HL,0000
2490 : LD HL,0000
2500 : LD HL,0000
2510 : LD HL,0000
2520 : LD HL,0000
2530 : LD HL,0000
2540 : LD HL,0000
2550 : LD HL,0000
2560 : LD HL,0000
2570 : LD HL,0000
2580 : LD HL,0000
2590 : LD HL,0000
2600 : LD HL,0000
2610 : LD HL,0000
2620 : LD HL,0000
2630 : LD HL,0000
2640 : LD HL,0000
2650 : LD HL,0000
2660 : LD HL,0000
2670 : LD HL,0000
2680 : LD HL,0000
2690 : LD HL,0000
2700 : LD HL,0000
2710 : LD HL,0000
2720 : LD HL,0000
2730 : LD HL,0000
2740 : LD HL,0000
2750 : LD HL,0000
2760 : LD HL,0000
2770 : LD HL,0000
2780 : LD HL,0000
2790 : LD HL,0000
2800 : LD HL,0000
2810 : LD HL,0000
2820 : LD HL,0000
2830 : LD HL,0000
2840 : LD HL,0000
2850 : LD HL,0000
2860 : LD HL,0000
2870 : LD HL,0000
2880 : LD HL,0000
2890 : LD HL,0000
2900 : LD HL,0000
2910 : LD HL,0000
2920 : LD HL,0000
2930 : LD HL,0000
2940 : LD HL,0000
2950 : LD HL,0000
2960 : LD HL,0000
2970 : LD HL,0000
2980 : LD HL,0000
2990 : LD HL,0000
3000 : LD HL,0000
3010 : LD HL,0000
3020 : LD HL,0000
3030 : LD HL,0000
3040 : LD HL,0000
3050 : LD HL,0000
3060 : LD HL,0000
3070 : LD HL,0000
3080 : LD HL,0000
3090 : LD HL,0000
3100 : LD HL,0000
3110 : LD HL,0000
3120 : LD HL,0000
3130 : LD HL,0000
3140 : LD HL,0000
3150 : LD HL,0000
3160 : LD HL,0000
3170 : LD HL,0000
3180 : LD HL,0000
3190 : LD HL,0000
3200 : LD HL,0000
3210 : LD HL,0000
3220 : LD HL,0000
3230 : LD HL,0000
3240 : LD HL,0000
3250 : LD HL,0000
3260 : LD HL,0000
3270 : LD HL,0000
3280 : LD HL,0000
3290 : LD HL,0000
3300 : LD HL,0000
3310 : LD HL,0000
3320 : LD HL,0000
3330 : LD HL,0000
3340 : LD HL,0000
3350 : LD HL,0000
3360 : LD HL,0000
3370 : LD HL,0000
3380 : LD HL,0000
3390 : LD HL,0000
3400 : LD HL,0000
3410 : LD HL,0000
3420 : LD HL,0000
3430 : LD HL,0000
3440 : LD HL,0000
3450 : LD HL,0000
3460 : LD HL,0000
3470 : LD HL,0000
3480 : LD HL,0000
3490 : LD HL,0000
3500 : LD HL,0000
3510 : LD HL,0000
3520 : LD HL,0000
3530 : LD HL,0000
3540 : LD HL,0000
3550 : LD HL,0000
3560 : LD HL,0000
3570 : LD HL,0000
3580 : LD HL,0000
3590 : LD HL,0000
3600 : LD HL,0000
3610 : LD HL,0000
3620 : LD HL,0000
3630 : LD HL,0000
3640 : LD HL,0000
3650 : LD HL,0000
3660 : LD HL,0000
3670 : LD HL,0000
3680 : LD HL,0000
3690 : LD HL,0000
3700 : LD HL,0000
3710 : LD HL,0000
3720 : LD HL,0000
3730 : LD HL,0000
3740 : LD HL,0000
3750 : LD HL,0000
3760 : LD HL,0000
3770 : LD HL,0000
3780 : LD HL,0000
3790 : LD HL,0000
3800 : LD HL,0000
3810 : LD HL,0000
3820 : LD HL,0000
3830 : LD HL,0000
3840 : LD HL,0000
3850 : LD HL,0000
3860 : LD HL,0000
3870 : LD HL,0000
3880 : LD HL,0000
3890 : LD HL,0000
3900 : LD HL,0000
3910 : LD HL,0000
3920 : LD HL,0000
3930 : LD HL,0000
3940 : LD HL,0000
3950 : LD HL,0000
3960 : LD HL,0000
3970 : LD HL,0000
3980 : LD HL,0000
3990 : LD HL,0000
4000 : LD HL,0000
4010 : LD HL,0000
4020 : LD HL,0000
4030 : LD HL,0000
4040 : LD HL,0000
4050 : LD HL,0000
4060 : LD HL,0000
4070 : LD HL,0000
4080 : LD HL,0000
4090 : LD HL,0000
4100 : LD HL,0000
4110 : LD HL,0000
4120 : LD HL,0000
4130 : LD HL,0000
4140 : LD HL,0000
4150 : LD HL,0000
4160 : LD HL,0000
4170 : LD HL,0000
4180 : LD HL,0000
4190 : LD HL,0000
4200 : LD HL,0000
4210 : LD HL,0000
4220 : LD HL,0000
4230 : LD HL,0000
4240 : LD HL,0000
4250 : LD HL,0000
4260 : LD HL,0000
4270 : LD HL,0000
4280 : LD HL,0000
4290 : LD HL,0000
4300 : LD HL,0000
4310 : LD HL,0000
4320 : LD HL,0000
4330 : LD HL,0000
4340 : LD HL,0000
4350 : LD HL,0000
4360 : LD HL,0000
4370 : LD HL,0000
4380 : LD HL,0000
4390 : LD HL,0000
4400 : LD HL,0000
4410 : LD HL,0000
4420 : LD HL,0000
4430 : LD HL,0000
4440 : LD HL,0000
4450 : LD HL,0000
4460 : LD HL,0000
4470 : LD HL,0000
4480 : LD HL,0000
4490 : LD HL,0000
4500 : LD HL,0000
4510 : LD HL,0000
4520 : LD HL,0000
4530 : LD HL,0000
4540 : LD HL,0000
4550 : LD HL,0000
4560 : LD HL,0000
4570 : LD HL,0000
4580 : LD HL,0000
4590 : LD HL,0000
4600 : LD HL,0000
4610 : LD HL,0000
4620 : LD HL,0000
4630 : LD HL,0000
4640 : LD HL,0000
4650 : LD HL,0000
4660 : LD HL,0000
4670 : LD HL,0000
4680 : LD HL,0000
4690 : LD HL,0000
4700 : LD HL,0000
4710 : LD HL,0000
4720 : LD HL,0000
4730 : LD HL,0000
4740 : LD HL,0000
4750 : LD HL,0000
4760 : LD HL,0000
4770 : LD HL,0000
4780 : LD HL,0000
4790 : LD HL,0000
4800 : LD HL,0000
4810 : LD HL,0000
4820 : LD HL,0000
4830 : LD HL,0000
4840 : LD HL,0000
4850 : LD HL,0000
4860 : LD HL,0000
4870 : LD HL,0000
4880 : LD HL,0000
4890 : LD HL,0000
4900 : LD HL,0000
4910 : LD HL,0000
4920 : LD HL,0000
4930 : LD HL,0000
4940 : LD HL,0000
4950 : LD HL,0000
4960 : LD HL,0000
4970 : LD HL,0000
4980 : LD HL,0000
4990 : LD HL,0000
5000 : LD HL,0000
5010 : LD HL,0000
5020 : LD HL,0000
5030 : LD HL,0000
5040 : LD HL,0000
5050 : LD HL,0000
5060 : LD HL,0000
5070 : LD HL,0000
5080 : LD HL,0000
5090 : LD HL,0000
5100 : LD HL,0000
5110 : LD HL,0000
5120 : LD HL,0000
5130 : LD HL,0000
5140 : LD HL,0000
5150 : LD HL,0000
5160 : LD HL,0000
5170 : LD HL,0000
5180 : LD HL,0000
5190 : LD HL,0000
5200 : LD HL,0000
5210 : LD HL,0000
5220 : LD HL,0000
5230 : LD HL,0000
5240 : LD HL,0000
5250 : LD HL,0000
5260 : LD HL,0000
5270 : LD HL,0000
5280 : LD HL,0000
5290 : LD HL,0000
5300 : LD HL,0000
5310 : LD HL,0000
5320 : LD HL,0000
5330 : LD HL,0000
5340 : LD HL,0000
5350 : LD HL,0000
5360 : LD HL,0000
5370 : LD HL,0000
5380 : LD HL,0000
5390 : LD HL,0000
5400 : LD HL,0000
5410 : LD HL,0000
5420 : LD HL,0000
5430 : LD HL,0000
5440 : LD HL,0000
5450 : LD HL,0000
5460 : LD HL,0000
5470 : LD HL,0000
5480 : LD HL,0000
5490 : LD HL,0000
5500 : LD HL,0000
5510 : LD HL,0000
5520 : LD HL,0000
5530 : LD HL,0000
5540 : LD HL,0000
5550 : LD HL,0000
5560 : LD HL,0000
5570 : LD HL,0000
5580 : LD HL,0000
5590 : LD HL,0000
5600 : LD HL,0000
5610 : LD HL,0000
5620 : LD HL,0000
5630 : LD HL,0000
5640 : LD HL,0000
5650 : LD HL,0000
5660 : LD HL,0000
5670 : LD HL,0000
5680 : LD HL,0000
5690 : LD HL,0000
5700 : LD HL,0000
5710 : LD HL,0000
5720 : LD HL,0000
5730 : LD HL,0000
5740 : LD HL,0000
5750 : LD HL,0000
5760 : LD HL,0000
5770 : LD HL,0000
5780 : LD HL,0000
5790 : LD HL,0000
5800 : LD HL,0000
5810 : LD HL,0000
5820 : LD HL,0000
5830 : LD HL,0000
5840 : LD HL,0000
5850 : LD HL,0000
5860 : LD HL,0000
5870 : LD HL,0000
5880 : LD HL,0000
5890 : LD HL,0000
5900 : LD HL,0000
5910 : LD HL,0000
5920 : LD HL,0000
5930 : LD HL,0000
5940 : LD HL,0000
5950 : LD HL,0000
5960 : LD HL,0000
5970 : LD HL,0000
5980 : LD HL,0000
5990 : LD HL,0000
6000 : LD HL,0000
6010 : LD HL,0000
6020 : LD HL,0000
6030 : LD HL,0000
6040 : LD HL,0000
6050 : LD HL,0000
6060 : LD HL,0000
6070 : LD HL,0000
6080 : LD HL,0000
6090 : LD HL,0000
6100 : LD HL,0000
6110 : LD HL,0000
6120 : LD HL,0000
6130 : LD HL,0000
6140 : LD HL,0000
6150 : LD HL,0000
6160 : LD HL,0000
6170 : LD HL,0000
6180 : LD HL,0000
6190 : LD HL,0000
6200 : LD HL,0000
6210 : LD HL,0000
6220 : LD HL,0000
6230 : LD HL,0000
6240 : LD HL,0000
6250 : LD HL,0000
6260 : LD HL,0000
6270 : LD HL,0000
6280 : LD HL,0000
6290 : LD HL,0000
6300 : LD HL,0000
6310 : LD HL,0000
6320 : LD HL,0000
6330 : LD HL,0000
6340 : LD HL,0000
6350 : LD HL,0000
6360 : LD HL,0000
6370 : LD HL,0000
6380 : LD HL,0000
6390 : LD HL,0000
6400 : LD HL,0000
6410 : LD HL,0000
6420 : LD HL,0000
6430 : LD HL,0000
6440 : LD HL,0000
6450 : LD HL,0000
6460 : LD HL,0000
6470 : LD HL,0000
6480 : LD HL,0000
6490 : LD HL,0000
6500 : LD HL,0000
6510 : LD HL,0000
6520 : LD HL,0000
6530 : LD HL,0000
6540 : LD HL,0000
6550 : LD HL,0000
6560 : LD HL,0000
6570 : LD HL,0000
6580 : LD HL,0000
6590 : LD HL,0000
6600 : LD HL,0000
6610 : LD HL,0000
6620 : LD HL,0000
6630 : LD HL,0000
6640 : LD HL,0000
6650 : LD HL,0000
6660 : LD HL,0000
6670 : LD HL,0000
6680 : LD HL,0000
6690 : LD HL,0000
6700 : LD HL,0000
6710 : LD HL,0000
6720 : LD HL,0000
6730 : LD HL,0000
6740 : LD HL,0000
6750 : LD HL,0000
6760 : LD HL,0000
6770 : LD HL,0000
6780 : LD HL,0000
6790 : LD HL,0000
6800 : LD HL,0000
6810 : LD HL,0000
6820 : LD HL,0000
6830 : LD HL,0000
6840 : LD HL,0000
6850 : LD HL,0000
6860 : LD HL,0000
6870 : LD HL,0000
6880 : LD HL,0000
6890 : LD HL,0000
6900 : LD HL,0000
6910 : LD HL,0000
6920 : LD HL,0000
6930 : LD HL,0000
6940 : LD HL,0000
6950 : LD HL,0000
6960 : LD HL,0000
6970 : LD HL,0000
6980 : LD HL,0000
6990 : LD HL,0000
7000 : LD HL,0000
7010 : LD HL,0000
7020 : LD HL,0000
7030 : LD HL,0000
7040 : LD HL,0000
7050 : LD HL,0000
7060 : LD HL,0000
7070 : LD HL,0000
7080 : LD HL,0000
7090 : LD HL,0000
7100 : LD HL,0000
7110 : LD HL,0000
7120 : LD HL,0000
7130 : LD HL,0000
7140 : LD HL,0000
7150 : LD HL,0000
7160 : LD HL,0000
7170 : LD HL,0000
7180 : LD HL,0000
7190 : LD HL,0000
7200 : LD HL,0000
7210 : LD HL,0000
7220 : LD HL,0000
7230 : LD HL,0000
7240 : LD HL,0000
7250 : LD HL,0000
7260 : LD HL,0000
7270 : LD HL,0000
7280 : LD HL,0000
7290 : LD HL,0000
7300 : LD HL,0000
7310 : LD HL,0000
7320 : LD HL,0000
7330 : LD HL,0000
7340 : LD HL,0000
7350 : LD HL,0000
7360 : LD HL,0000
7370 : LD HL,0000
7380 : LD HL,0000
7390 : LD HL,0000
7400 : LD HL,0000
7410 : LD HL,0000
7420 : LD HL,0000
7430 : LD HL,0000
7440 : LD HL,0000
7450 : LD HL,0000
7460 : LD HL,0000
7470 : LD HL,0000
7480 : LD HL,0000
7490 : LD HL,0000
7500 : LD HL,0000
7510 : LD HL,0000
7520 : LD HL,0000
7530 : LD HL,0000
7540 : LD HL,0000
7550 : LD HL,0000
7560 : LD HL,0000
7570 : LD HL,0000
7580 : LD HL,0000
7590 : LD HL,0000
7600 : LD HL,0000
7610 : LD HL,0000
7620 : LD HL,0000
7630 : LD HL,0000
7640 : LD HL,0000
7650 : LD HL,0000
7660 : LD HL,0000
7670 : LD HL,0000
7680 : LD HL,0000
7690 : LD HL,0000
7700 : LD HL,0000
7710 : LD HL,0000
7720 : LD HL,0000
7730 : LD HL,0000
7740 : LD HL,0000
7750 : LD HL,0000
7760 : LD HL,0000
7770 : LD HL,0000
7780 : LD HL,0000
7790 : LD HL,0000
7800 : LD HL,0000
7810 : LD HL,0000
7820 : LD HL,0000
7830 : LD HL,0000
7840 : LD HL,0000
7850 : LD HL,0000
7860 : LD HL,0000
7870 : LD HL,0000
7880 : LD HL,0000
7890 : LD HL,0000
7900 : LD HL,0000
7910 : LD HL,0000
7920 : LD HL,0000
7930 : LD HL,0000
7940 : LD HL,0000
7950 : LD HL,0000
7960 : LD HL,0000
7970 : LD HL,0000
7980 : LD HL,0000
7990 : LD HL,0000
8000 : LD HL,0000
8010 : LD HL,0000
8020 : LD HL,0000
8030 : LD HL,0000
8040 : LD HL,0000
8050 : LD HL,0000
8060 : LD HL,0000
8070 : LD HL,0000
8080 : LD HL,0000
8090 : LD HL,0000
8100 : LD HL,0000
8110 : LD HL,0000
8120 : LD HL,0000
8130 : LD HL,0000
8140 : LD HL,0000
8150 : LD HL,0000
8160 : LD HL,0000
8170 : LD HL,0000
8180 : LD HL,0000
8190 : LD HL,0000
8200 : LD HL,0000
8210 : LD HL,0000
8220 : LD HL,0000
8230 : LD HL,0000
8240 : LD HL,0000
8250 : LD HL,0000
8260 : LD HL,0000
8270 : LD HL,0000
8280 : LD HL,0000
8290 : LD HL,0000
8300 : LD HL,0000
8310 : LD HL,0000
8320 : LD HL,0000
8330 : LD HL,0000
8340 : LD HL,0000
8350 : LD HL,0000
8360 : LD HL,0000
8370 : LD HL,0000
8380 : LD HL,0000
8390 : LD HL,0000
8400 : LD HL,0000
8410 : LD HL,0000
8420 : LD HL,0000
8430 : LD HL,0000
8440 : LD HL,0000
8450 : LD HL,0000
8460 : LD HL,0000
8470 : LD HL,0000
8480
```



```

1070 LD R,255
1080 LD R,(APPLG),A
1090 OR A,R
1100 JR NZ,REAR7
1110 JR NZ,REAR7
1120 OUTCH:
1130 ORL W,0
1140 JR NZ,REAR2
1150 JR NZ,REAR2
1160 REAR7: LD H,(REAR7)
1170 LD R,(CH),A
1180 LD R,(CH),A
1190 LD R,(CH),A
1200 LD R,(CH),A
1210 LD R,(CH),A
1220 LD R,(CH),A
1230 LD R,(CH),A
1240 LD R,(CH),A
1250 LD R,(CH),A
1260 LD R,(CH),A
1270 LD R,(CH),A
1280 LD R,(CH),A
1290 LD R,(CH),A
1300 LD R,(CH),A
1310 LD R,(CH),A
1320 LD R,(CH),A
1330 LD R,(CH),A
1340 LD R,(CH),A
1350 LD R,(CH),A
1360 LD R,(CH),A
1370 LD R,(CH),A
1380 LD R,(CH),A
1390 LD R,(CH),A
1400 LD R,(CH),A
1410 LD R,(CH),A
1420 LD R,(CH),A
1430 LD R,(CH),A
1440 LD R,(CH),A
1450 LD R,(CH),A
1460 LD R,(CH),A
1470 LD R,(CH),A
1480 LD R,(CH),A
1490 LD R,(CH),A
1500 LD R,(CH),A
1510 LD R,(CH),A
1520 LD R,(CH),A
1530 LD R,(CH),A
1540 LD R,(CH),A
1550 LD R,(CH),A
1560 LD R,(CH),A
1570 LD R,(CH),A
1580 LD R,(CH),A
1590 LD R,(CH),A
1600 LD R,(CH),A
1610 LD R,(CH),A
1620 LD R,(CH),A
1630 LD R,(CH),A
1640 LD R,(CH),A
1650 LD R,(CH),A
1660 LD R,(CH),A
1670 LD R,(CH),A
1680 LD R,(CH),A
1690 LD R,(CH),A
1700 LD R,(CH),A
1710 LD R,(CH),A
1720 LD R,(CH),A
1730 LD R,(CH),A
1740 LD R,(CH),A
1750 LD R,(CH),A
1760 LD R,(CH),A
1770 LD R,(CH),A
1780 LD R,(CH),A
1790 LD R,(CH),A
1800 LD R,(CH),A
1810 LD R,(CH),A
1820 LD R,(CH),A
1830 LD R,(CH),A
1840 LD R,(CH),A
1850 LD R,(CH),A
1860 LD R,(CH),A
1870 LD R,(CH),A
1880 LD R,(CH),A
1890 LD R,(CH),A
1900 LD R,(CH),A
1910 LD R,(CH),A
1920 LD R,(CH),A
1930 LD R,(CH),A
1940 LD R,(CH),A
1950 LD R,(CH),A
1960 LD R,(CH),A
1970 LD R,(CH),A
1980 LD R,(CH),A
1990 LD R,(CH),A
2000 LD R,(CH),A

```

Write character to output file  
Jump if error occurred  
Insert string into new file  
Is this the end-of-file?  
Tried to write Past end-of-file  
Close input file  
Close output file  
Erase old input file  
Close input file  
Close output file  
Rename temporary file  
Print error message  
Random input file  
Close output file  
Jump to basic with error  
File not properly created - DO NOT USE!  
Routine checks to see if the DISC command can be found - check for DOS

## SOFT INSIGHT

SPECTRUM	RRP	OUR PRICE	WHO DARES WIN?
WORM IN PARADISE	9.95	7.00	SCORABLE
ANY LEVEL 9 GAMES	9.95	7.45	ANY AMBIT GAMES
NOW GAMES II	9.95	6.20	ANY LEVEL 9 GAMES
COMMANDO	9.95	5.40	WORM IN PARADISE
TRANSFORMERS	9.95	4.40	MARCOPI
SARATHEUR	9.95	6.75	NIGHT SHADE
TOMAHAWK	9.95	5.95	YIE AR KUNGFU
WYAM MUSIC BOX	9.95	7.45	880
ELITE	14.95	11.21	HIGHWAY ENDANGER
SPLITFIRE 40	9.95	6.90	THEY SOLD A MILLION
ELITE	9.95	6.95	SPY
ELITE TURNER	9.95	1.99	DYNAMITE 68
RASPUTIN	7.95	5.40	CALL DREN
TRANSFORMERS	7.95	5.40	SUNNY BOB STRIKES BACK
ART STUDIO	14.95	11.00	KNIGHT LORE
RAMBO	7.95	5.40	ANY LEVEL 9
MOOSE	7.95	5.40	COMMANDO
COSMIC WAR TOAD	7.95	5.40	BORER OF THE RINGS
NOMAD	7.95	5.40	IMPOSSIBLE MISSION
FUNSTONES	7.95	5.40	ANY LEVEL 9
LORD OF THE RINGS	15.95	12.00	ARWOLF
FINEST HOUR	9.95	6.90	SUNNY BELL
WINTER GAMES	9.95	5.90	GRAPHIC ADV CRIGATOR
3 WEEKS IN PARADISE	9.95	6.90	BBC
ZODIAC	9.95	6.20	MONOPOLY
EXPLODING FIST	9.95	6.30	CTICUL
ENIGMAFORCE	9.95	6.90	STRIVE FORCE HARNER
AMSTRAD	14.95	11.21	EXPLODING FIST
ELITE			

ALL PRICES INCLUDE FREE FAST DELIVERY. PLEASE MAKE CHEQUE PAYABLE TO: SOFT INSIGHT, 17 Surges Grove, Greenwich, London SE18 6AA. Access orders/enquiries 01-895 0788 PD245

## DISCOUNT SOFTWARE

RRP	OUR PRICE	WHO DARES WIN?
15.95	6.20	GYROSCOPE
15.95	5.40	YIE KUNG FU
9.95	7.45	CTIDALE
9.95	6.71	YATANI
9.95	7.80	MERCENARY
9.95	5.20	ELECTRA GLIDE
9.95	7.45	FRACTALUS
9.95	6.95	SMASH HITS (IV)
9.95	6.71	SPY HUNTER
9.95	7.45	ZONEX
9.95	7.00	KING OF THE RING
9.95	7.45	CBM64
9.95	6.90	BOLINDER
9.95	6.90	DRAGONSLAVE
9.95	6.71	ANY OF US GOLD
9.95	6.90	ANY ACTIVATION
9.95	6.90	ANY LEVEL 9
9.95	6.90	MERCENARY
9.95	6.90	RAMBO
9.95	6.90	COMMANDO
9.95	6.90	L'COMP PEOPLE
9.95	6.90	WORM IN PARADISE
9.95	6.90	PALANALUS 65
9.95	6.90	GOONIES
14.95	11.00	REVS
9.95	6.20	TRANSFORMERS
9.95	6.20	ADV MUSIC SYST
9.95	6.20	MOUSE
9.95	6.90	ENIGMA FORCE
9.95	6.90	QUAKE MINUS 1
9.95	6.90	ZORRO

## POPULAR Computing WEEKLY

BINDER £3.50 + p&amp;p

Keep your issues in order with a specially designed Popular Computing Weekly binder holding up to 13 copies for quick reference back to that program listing or article.

Send me..... Popular Computing Weekly binders at £3.50 each plus postage (£1 U.K., £1.50 Europe, £2.50 Rest of World)

☐ I enclose a cheque/postal order for..... made payable to Sunshine Publications Ltd.

☐ Please charge my Access/Visa Card No: .....

Name .....

Address .....

Postcode ..... Country .....

Which computer do you use? .....

Return this coupon together with payment to:

**PCW BINDER**  
12-13 Little Newport Street  
London WC2H 7PP, UK

HA10



# A SPECIAL MESSAGE TO ALL THOSE PEOPLE WHO HAD A SINCLAIR COMPUTER FOR CHRISTMAS

THE NEW YEAR  
MICROFAIR IS ON  
FEBRUARY 1ST 1986  
AT THE  
HORTICULTURAL HALLS  
LONDON SW1.

(and those who have had one for years)

Looking for great gizmos for your new Spectrum or QL? There's one place you will find everything: THE MICROFAIR. If it's new it will be on show. If it's original you'll find it on sale. If you need advice you only have to ask the exhibitors. If you want to meet thousands of enthusiasts, just come along and enjoy yourself.

There's everything for Sinclair Computers. Hardware, Software, Books, User Clubs, Programming Aids, Games, many at special 'show' prices — there's even a bring and buy sale.

For a fun day out and a chance to see and buy everything new and exciting... you won't beat the MICROFAIR.

## THE NEW YEAR MICROFAIR

1st FEBRUARY 1986

AT THE HORTICULTURAL HALL  
GREYCOAT STREET/ELVERTON STREET  
LONDON SW1. 10am-6pm.  
ADMISSION: £1.75 (ADULTS)  
£1.25 (KIDS UNDER 14 YRS)

## SEND NOW FOR REDUCED PRICE ADVANCE TICKETS

Send to Mike Johnston (Organiser), Dept  
ZX MICROFAIRS, 71 Park Lane, London N17 0HG.

Please send me advance tickets PW.  
(Adult @ £1.25)

Please send me advance tickets  
(Child under 14 @ £1.00)

Name: \_\_\_\_\_

Address: \_\_\_\_\_

18th  
ZX MICROFAIR

Please include a stamped, self-addressed envelope and make  
cheques/POs payable to ZX Microfair

### C & F ASSOCIATES

BBC	RRP	OUR	SPECTRUM	RRP	OUR	AMSTRAD	RRP	OUR
Enigma 7 (4000TR)	16.95	14.95	Gunsight	9.95	7.25	Seveto's World	7.95	6.95
Nightshade	9.95	7.25	Sweeney's World	7.95	5.95	Don Dun	9.95	7.25
Castle Frank Stein	7.95	5.95	Alien-8	9.95	7.25	Brian Bloodaxe	8.95	5.95
Worm In Paradise	9.95	7.25	Alien-8	10.99	7.25	Alien-8	9.95	7.25
Combat Lynx	9.95	5.95	Alien-8	9.95	7.25	Red Moon	6.95	5.95
Bollin	9.95	7.25	Alien-8	9.95	7.25	Rocco	8.95	5.95
Castle Quest	12.95	8.95	Alien-8	9.95	7.25	Project Future	6.95	5.95
Moonrider	7.95	5.95	Alien-8	9.95	7.25	Knight-Lore	9.95	7.25
Red Moon	6.95	5.95	Alien-8	9.95	7.25	Red Arrows	8.95	5.95
Exploiting Fire	9.95	7.25	Alien-8	9.95	7.25	Red Arrows (Disk)	12.95	5.95
Wheel of Fortune	9.95	7.25	Alien-8	9.95	7.25	Combat Lynx	8.95	5.95
Alien-8	9.95	7.25	Alien-8	9.95	7.25	Wizardry	9.95	7.25
Knight-Lore	9.95	7.25	Alien-8	9.95	7.25	Wizardry	9.95	7.25
Sabre Vult	9.95	7.25	Alien-8	9.95	7.25	Wizardry	9.95	7.25
Yie Ar Kung Fu	9.95	7.25	Alien-8	9.95	7.25	Wizardry	9.95	7.25
Rubble Trouble	7.95	5.95	Alien-8	9.95	7.25	Wizardry	9.95	7.25
Shovels	7.95	5.95	Alien-8	9.95	7.25	Wizardry	9.95	7.25
Cybertron Mission	7.95	5.95	Alien-8	9.95	7.25	Wizardry	9.95	7.25
Classic Arc Games	5.95	4.95	Alien-8	9.95	7.25	Wizardry	9.95	7.25
Crosser	7.95	5.95	Alien-8	9.95	7.25	Wizardry	9.95	7.25

ALL PRICES INCLUDE VAT AND P & P (Overseas Orders add £1.00 per line) CHEQUES/PO PAYABLE TO C & F ASSOCIATES AND SEND TO C & F ASSOCIATES (PCW) PO BOX 2, BIDEFORD EX30 3RE PD746

## CUT PRICE SOFTWARE

Spectrum	RRP	OUR	Matchday	RRP	OUR
Rock & Wristle	8.95	5.95	Transact	29.95	5.95
Monty on the Run	7.95	5.95	Transact	29.95	5.95
Elite	14.95	10.95	Transact	29.95	5.95
Elite	14.95	10.95	Transact	29.95	5.95
Elite	14.95	10.95	Transact	29.95	5.95
Elite	14.95	10.95	Transact	29.95	5.95
Elite	14.95	10.95	Transact	29.95	5.95
Elite	14.95	10.95	Transact	29.95	5.95
Elite	14.95	10.95	Transact	29.95	5.95
Elite	14.95	10.95	Transact	29.95	5.95

Large selection of AMSTRAD disk software available at discount prices. AMSTRAD blank disks, £39.95 per box of 10. Large range of CPM4 disk available. This is just a small selection from our stocks. Please ring for more details. P&P included. Overseas orders add 75p per tape. For Mail Order please send Cheques/PO payable to CPS Visual Access Card orders by phone welcome to:

CUT PRICE SOFTWARE, 4 Slackbury Hatch,

Harlow, Essex CM19 4ET

Tel: (0279) 24433 (24hr ansaphone) PD743

GAME	RRP	OUR	GAME	RRP	OUR
3D BOXING	9.95	7.00	3D BOXING	9.95	7.00
3D BOXING	9.95	7.00	3D BOXING	9.95	7.00
3D BOXING	9.95	7.00	3D BOXING	9.95	7.00
3D BOXING	9.95	7.00	3D BOXING	9.95	7.00
3D BOXING	9.95	7.00	3D BOXING	9.95	7.00
3D BOXING	9.95	7.00	3D BOXING	9.95	7.00
3D BOXING	9.95	7.00	3D BOXING	9.95	7.00
3D BOXING	9.95	7.00	3D BOXING	9.95	7.00
3D BOXING	9.95	7.00	3D BOXING	9.95	7.00

GAME	RRP	OUR	GAME	RRP	OUR
3D BOXING	9.95	7.00	3D BOXING	9.95	7.00
3D BOXING	9.95	7.00	3D BOXING	9.95	7.00
3D BOXING	9.95	7.00	3D BOXING	9.95	7.00
3D BOXING	9.95	7.00	3D BOXING	9.95	7.00
3D BOXING	9.95	7.00	3D BOXING	9.95	7.00
3D BOXING	9.95	7.00	3D BOXING	9.95	7.00
3D BOXING	9.95	7.00	3D BOXING	9.95	7.00
3D BOXING	9.95	7.00	3D BOXING	9.95	7.00
3D BOXING	9.95	7.00	3D BOXING	9.95	7.00

ALL AMSTRAD DISKS & UTILITIES ARE IN STOCK  
BOX OF TEN DISKS 40.00  
ALL PRICES INCLUDE P&P  
OVERSEAS ORDERS ADD £1.00 P&P PER  
TAPE  
ANY TITLES NOT SHOWN CAN BE SUPPLIED  
AT 25% OFF RRP. PLEASE MAKE CHEQUES/  
POs PAYABLE TO PCW AND SEND TO:  
PPC MAIL ORDER  
9 BENNECK HOUSE, 100 TOLPITS LANE  
WATFORD, HERTS WD1 8PZ  
(0621 63555)  
PPC Guarantee: that all products will be  
delivered within 7 days of receiving order or  
cheques will not be cashed until products are  
despatched PD742





## COMBLANK

by Hugh T Walker

**C**omblank is a simple combat routine for inclusion in an adventure to simulate Role Playing Games more closely than either pure puzzle or pure combat games do on their own. Comblank will not Run on its own and is designed to be used with Adblank, the adventure generator program which appeared in *Popular Computing Weekly*, Vol 4, Nos 42 and 43. Line 8140 of Adblank replaces that of Adblank and you should Merge Comblank into Adblank rather than vice versa. The listing contains all the routines required to support the Combat system, including a sample of monsters and verb routines to restore Stamina when not in combat (Eat & Rest).

The Combat System is called whenever you are in the same location as an enemy; an alarm message and siren heralds the onset of combat. You have the option to Attack or Run, but if you

hesitate too long the monster attacks you - your Skill would be zero for that attack-round as it caught you unprepared. If you press "A", your Skill is set to the value of your current Skill attribute. The outcome of each round is determined by the winner of Monster's Skill + 2 Dice against your Skill + 2 Dice. The loser sustains 2 points loss of Stamina. You may reduce this damage by accepting the option to Test Your Luck. This compares your Luck attribute with 2 Dice but also reduces your current Luck attribute for future tests.

Combat continues until one of you is dead or you successfully run away. If you press "R" you may escape if you have not already run away five times and if your Luck attribute is high enough. If you run away repeatedly you may lose Skill and Luck. If you do escape the monster gets a free hit; you lose 1 or 2 points Stamina, depending on your Luck

level, you then move to the Last Location (LL) visited.

Line 4008 alters the Look routine by detecting the presence of an enemy before the full location description is given. Thus you do not discover what you find until you have dealt with your adversary.

A victory gains you treasure and replenishes your stock of food if this has fallen below six meal's-worth.

The combat system takes no account of weapons or defences carried. On attack the Skill value could be reduced if no sword is carried; or the damage incurred by a blow could be increased if no shield is carried.

As with Adblank, this program gives a skeleton framework on which to build your system and it is the minimum algorithm for a 'realistic' combat.

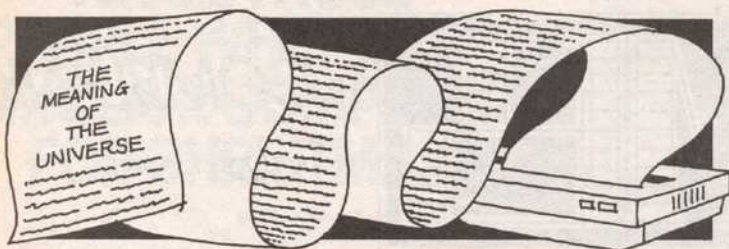
Next week, Part Two of the Listing, plus full program notes.

```

10 GO TO 843
20 DEF FN D()=INT (RND*6)+1:
REM throw dice
30 DEF FN L()=FN D()+FN D():=H
(2): REM ***test luck***
40 DEF FN R(X)=INT (RND*X)+1:
REM random generator
599 REM *****
600 REM *** UPDATE STATUS ***
601 REM *****
610 FOR F=1 TO 3
615 IF H(F)<1 THEN LET H(F)=0
620 IF H(F)>I(F) THEN LET H(F)=
I(F)
630 NEXT F
640 LET DD=NOT H(3): REM zero-
Stamina = DEATH!!
650 IF NOT CB THEN RETURN
699 REM *****
700 REM *** PRINT STATUS ***
701 REM *****
710 IF CB THEN PRINT AT 18,0;
720 FOR F=1 TO 3
730 PRINT H$(F);H(F);H$(F+3);H(
F+3)
740 NEXT F: RETURN
1040 LET CB=0: GO SUB 500: IF DD
THEN GO TO 7100
1050 IF M(LC) THEN GO TO 5000:
REM combat
4008 IF DD OR M(LC) THEN GO TO 4
040
4350 REM ***eat***
4355 IF NOT H(4) THEN PRINT "YOU
HAVE NO FOOD": GO TO 1E3
4360 PRINT "YOU ENJOY A HEARTY M
EAL"
4365 LET H(4)=H(4)-1: REM decre.M
ENT RATIONS
4370 LET H(3)=H(3)+2: REM incre.M
ENT STAMINA
4375 IF RND>.5 THEN BEEP .4,-45:
PRINT "PARDON!": IF RND>.3 THEN
LET M(LC)=FN R(NOM): REM 630
Monders attracts monsters!!!!
4380 GO TO 1E3
4400 REM ***status***
4410 GO SUB 700: GO TO 1E3
4450 REM ***rest***
4455 FOR F=1 TO 5
4460 PRINT "ZZZZZ "; REM snores
4465 BEEP .75,-50: BEEP .02,-45
4470 PAUSE 25: NEXT F: PRINT
4475 IF RND>.8 THEN LET M(LC)=FN
R(NOM): REM snores summon monst
er
4480 LET H(3)=H(3)+1
4490 GO TO 1E3
4999 REM *****
5000 REM *** SET UP COMBAT ***
5001 REM *****
5010 PRINT "CLUMSY OAF! YOU
HAVE ANNOYED "; FLASH 1; PAPER
2:"SOMETHING"; PRINT "!!! WITH
YOUR NOISE!!"
5020 RESTORE 9900+M(LC): READ M$
MSK,MST: REM monster DATA
5030 FOR F=1 TO 25 BEEP .03,10:
BEEP .01,0: NEXT F: REM alarm
5040 GO SUB 100
5050 PRINT TAB 9:"!! COMBAT !!";
TAB 9:"===== "
5060 PRINT AT 9,0;"
5070 PRINT AT 15,0;"
5080 PRINT "YOUR STATUS"
5090 LET CB=1
5099 REM *****
5100 REM *** FIGHT MONSTER ***
5101 REM *****
5110 PRINT AT 3,0;"YOU ARE CONFR
ONTED BY A VERY "ANGRY LOOKING
";H$;
5120 PRINT AT 6,0;H$;" STATUS"
5130 PRINT H$(1);MSK;" ",H$(3);M
ST;"
5140 GO SUB 500
5150 IF NOT MST THEN GO TO 5800:
REM monster is dead
5160 IF DD THEN GO TO 1E3: REM
you are dead

```





## INTERRUPTS

by Eric Deghaye

**W**hat is an interrupt? Anyone who has had a go at assembly language programming will have come across the term 'interrupt' but maybe never have quite grasped its full meaning. What exactly then is an interrupt?

Eating your lunch can be seen as a sequence of instructions, but the telephone ringing is not part of the program as it has been caused by someone else ringing. The interesting part though is when the phone rang, you stopped executing the program 'eat lunch' to execute the program 'answer phone'. When the conversation is over you carry on with your lunch where you left it.

Now what has all this got to do with the 6802? The more aware reader will have noticed that the 6802 chip has two pins labelled NMI and IRQ (their correct name will be revealed later). These pins are the 'telephone bells' of the example above. When the 'phone rings' over one of these lines, the processor finishes the instruction it is currently doing, goes to another program, executes it, then comes back to the previous program and carries on.

I hear you all say 'Nice, but what's it for?'. Well, one of the uses of microprocessors beyond zapping aliens is to control external devices. We could have a microprocessor controlling a machine with a fixed program. But, say if the machine overheats, or something else happens, this can be used to trigger an interrupt line, and cause the microprocessor to go to 'plan b' and do the appropriate action. So it is some form of external control over the execution of a program.

Inside a microcomputer itself, things are a little different. First there is no machinery that may have to take control of the microprocessor, and a computer has a lot of things to think about. In fact most micros use the interrupts in a slightly different way. The circuitry inside the computer causes several interrupts per second, so the computer is continuously jumping between several programs, thus tricking the user into believing that two or more programs are running in the same time. So how does it work?

There are two interrupts on the 6802. One is called Non Maskable Interrupt (NMI) and Interrupt Request (IRQ). They are identical except for one point. The IRQ can be disabled by setting the interrupt disable bit with the command SEI, whilst NMI cannot be disabled at all, and in the event that both interrupts occur at the same time, NMI has priority. About 60 times per second an interrupt occurs and the processor finishes the instruction it is currently doing, pushes the return address on the stack (ie, the address where the program was left) and jumps to the interrupt service routine. When the instruction RTI (Return from Interrupt) is encountered, the return address is pulled from the stack and execution of the normal program continues.

The vectors for the interrupt routines (a vector is the address of a routine stored in memory) are found in the interrupt vectors. The location of these is always fixed at the following addresses for any 6802 machine:

NMI \$FFFA-FFFF Points to \$FE43  
IRQ \$FFFE-FFFF Points to \$FF48

On the C64 these point for IRQ to \$FF48 and for NMI to \$FE43. Their equivalent can be easily found for other machines by peeking at the addresses mentioned above. These locations contain the address of a routine which will be executed when an interrupt occurs. On the Commodore, the routine is merely a glorified jump to another routine, however it makes our life easier because the jump address is another vector that can be changed easily to point to our routines. The secondary vectors are located at:

IRQ \$0314-0315 (points to \$EA31 normally)  
NMI \$0318-0319 (points to \$FE47)

Using the interrupts is a pretty simple thing then. All we need to do is to change the secondary vectors so that they point to our routine and at the end of our routine, do a jump to where the interrupt normally goes. There are three commands associated with handling interrupts, they are:

**SEI** Set interrupt disable bit - after execution of this command the IRQ interrupt is disabled.

**CLI** Clear interrupt disable bit - re-enable IRQ interrupt) NMI interrupts cannot be disabled hence the name).

**RTI** Return from interrupt - similar in operation to RTS but use with care or the operating system interrupts will not occur and problems may arise.

Enough for words now, Example one is a demonstration program written for the

```
10 REM BASIC LISTING FOR INTERRUPT EXAMPLE 1
20 :
30 :
40 INC=0
50 BASE=20480
60 READ A:IF A=-1 THEN SYS 20480
70 POKE BASE+INC,A
80 INC=INC+1 : GOTO 60
90 :
95 :
100 DATA 120,169,13,141,20,3,169,80,141,21,3,88,96,238,32,208,76,49,234,0
110 DATA 0,-1,-1,-1
```



64. Once SYS 20480 has been typed, the border colour will change about 60 times per second, enough to drive the sanest of persons mad.

The program should be portable on to other machines such as the BBC, all one has to do is to find the correct addresses of the vectors and the colour code location.

The first part of the program changes the vectors to make them point to our routine instead. Notice that the interrupt is disabled before the addresses are changed; if this was not done an interrupt may occur whilst only half the address were changed so it would point to the wrong address, and eventually crash the computer.

Once the interrupt is re-enabled, every time an interrupt occurs our routine will be executed before the normal routine. All it does is to add one to the border colour code, thus changing the colour.

The result is highly entertaining, but enough to send you to mental hospital after prolonged exposure.

To demonstrate the concept of interrupt, play with the keyboard while the colours change furiously. It works as well; you can actually type a program in Basic.

A little exercise: try and change this program to make it change the screen as well as the border colour. (Hint - the screen colour address is \$D021, you only need another program line). Another possibility is to replace the address \$D021 with \$0286. This is the character colour location, and doing this will result in some rather colourful listings.

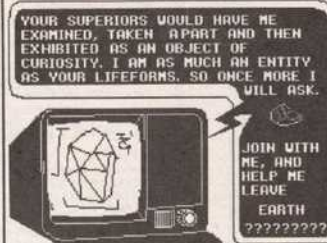
More examples of interrupt on the Commodore next week.

```

100 =====
110 !
120 !      INTERRUPT EXAMPLE 1
130 !
140 !
150 !
160 !
170 IRQVECA    = %0314      !LSB OF IRQ VECTOR
180 IRQVECB    = %0315      !MSB ---"---
190 RETPOINT    = %EA31      !NORMAL INTERRUPT ROUTINE
200 COLOUR      = %D020      !BORDER COLOUR CODE
210 !
220 **$5000
230 !
240 !CHANGE THE VECTORS
250 !
260 !
270 !      SEI
280 !      LDA E:ROUTINE      !CHANGE THE IRQ VECTOR SO
290 !      STA IRQVECA        !THAT IT POINTS TO OUR
300 !      LDA E:ROUTINE      !SUBROUTINE
310 !      STA IRQVECB
320 !      CLI
330 !      RTS
340 !
350 !
360 !
370 !      THE MAIN ROUTINE
380 !
390 !
400 !
410 ROUTINE    INC COLOUR
420             JMP RETPOINT
430 !
440 !ALL WE DO HERE IS SIMPLY TO ADD 1
450 !TO THE COLOUR CODE AND JUMP TO
460 !THE NORMAL INTERRUPT ROUTINE

```

## The Rogue Program

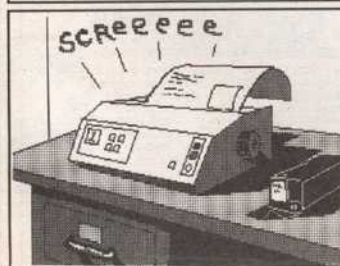


THE INTRUDER THEN INSTRUCTED CINDY TO PLACE IT NEXT TO THE PRINTER. ○

HE WOULD THEN PRINT OUT THE CO-ORDINATES FOR THE NEXT PART OF THEIR JOURNEY.

○ ○ ○ ○ ○

CINDY COMPLIED.







## On the run

**F**ollowing considerable numbers of pleading letters on the subject I have no doubt that there will be loud cheers of relief and delight with the publication of this set of Pokes for the Spectrum *Monty On The Run* sent in by Paul Miller. Despite being 'just another platform game' MOTR is full of fun and nice touches that make it one of the best recent buys, but it is also fiendishly difficult in places. Owners of CBM and Amstrad machines (for which the conversion of the game should be out this month), do not despair - we will have more help on the game in our Arcade Champion's special together with tips on *Sweevo's World*, *Marsport*, *Back To Skool*, *Rambo* and a whole host of other top selling recent releases.

Paul has also given this routine for the Firebird cheapie *Don't Panic* - run it and then load the game.

10 Clear 23999 : Load ""

Code 16384  
20 Load "" Code  
30 Poke 24195,0 : Poke 27824,0

40 Randomise Usr 25410

Sticking for a moment with high class cheapie games Peter Millar of Aberdeen has sent some pokes for *Spellbound*, David Jones's superb follow up to the very popular *Finders Keepers*.

To get the pokes in *Clear* 26000 then Load "" Code. When the game has loaded Poke 27871,0 to stop strength loss when walking. To stop strength loss in the Odd Ball Room Poke 36133,0. Finally Randomise Usr 26643 to start.

Pete also mentions that there is a different Randomise number that can be read if you Merge the Basic loading program - if you use this you get a neat little message for hackers. As Pete says "*Spellbound* is a super game and it's nice to see a successful programmer who isn't stopping us amateur hackers from having a lot of fun."

It's very rare that we hear from Memotech owners in the column but hopefully that will change following the company's massive price cuts. The machine now represents tremendous value for money, and is really a first class product. There has also been a considerable increase in the standard of available software with the release of the

Speculator Spectrum emulator and some very nice new releases from a relatively new company Megastar games. They are an independent set-up but, anyone wishing to contact them should write care of Memotech, Station Lane Estate, Witney, Oxon.

Anyway, to get back to the point, we have had a letter from none other than the bizarrely named 'Owd Gent of Accrington' who has discovered the familiar keypress routines for jumping to any screen on the MTX version of *Manic Miner*. For example keys 2 and 6 together take you to the *Menagerie*, 5 and 6 to the *Warehouse*, 1,2,3,4,7,8, 9,0 to the *Sixteenth Cavern*, 2, 3,4,7,8,9 to the bank. We have seen similar things many times before but it's worth reminding new Memotech owners.

I've had another crop of letters from people stuck in the convoluted problems of Hewson's *Dragontorc*, including some from new Amstrad owners. To let everyone out of their misery we have decided to serialise the complete solution, thanks to help from Hewson. As with our *Castle Quest* solution we will give you ample warning each week so that you needn't read the answers unless you want to, just keep the relevant issues until you are really

stuck.

You begin the game of course in Wispwood. Use the *Bane* spell here to kill the wisps. Take the M seal and open the stones with it. Leave it in the stone circle to take to Webwood later. Use the *Servant* to give the bow to the elf. Search the pool and give the jewel you find to the elf. In return get the golden sickle and a message Find Merlyn's Cave in Webwood. Use the sickle to cut the herb, this gives you the *Energise* spell. Search the hole to get the *Missile*. Stand on hole to drop to the next level.

You will now be in the Vaults of Locris for the first time. Go right to the teapot room, search the pot with the servant to find the rune. Go to fireball/stool room. Touch stool with servant then leave by the rearmost of the two adjacent doors. Avoid skeletons, go through back door, take spell, leave by other door. *Missile* skeletons as they appear and take chalice. Go left then back right through frontmost door to pool room.

Kill skeleton and dip chalice in pool. Leave by other exit - go right, take back door in fireball room, go right till in pedestal room. Put chalice on pedestal, take the *Heal* spell, sit on pedestal for more energy.

Tony Kendle

```
10 REM MONTY ON THE RUN POKES
20 REM
30 REM By Paul Miller 21985
40 REM
50 CLEAR 39999
60 LET Screen=1: LET Lives=5
70 LET Tot=0
80 FOR I=40000 TO 41000
90 READ J
100 IF J=999 THEN GO TO 130
110 POKE I,J: LET Tot=Tot+J
120 NEXT I
130 RANDOMIZE USR 40000:
    REM "Run Code"
140 STOP
1000 DATA 221,33,12,248,17,5,1
1010 DATA 62,255,55,205,86,5,48
1020 DATA 241,62,29,50,71,248
1030 DATA 62,83,50,75,248,62,13
1040 DATA 50,86,248,62,249,50
1050 DATA 87,248,62,7,50,234
1060 DATA 248,33,118,156,17,13
1070 DATA 249,1,0,1,237,176,195
1080 DATA 32,248,33,27,249,17
1090 DATA 0,64,1,0,1,237,176
1100 DATA 195,0,64,33,255,247
1110 DATA 17,255,255,1,0,165
```

```
1120 DATA 237,184,49,255,95
2000 REM
    INFINITE LIVES
2010 DATA 62,195,50,46,157
2020 DATA 62,24,50,156,135
2030 REM
    CRUSHERS DON'T KILL
2040 DATA 62,201,50,141,134
2050 REM
    SCREEN = START SCREEN
2060 DATA 62,SCREEN,50,178,152
2070 REM
    WALK THROUGH MONSTERS
2080 DATA 62,201,50,157,143
2090 REM
    WALK ON WATER
2100 DATA 62,0,50,83,154
2110 REM
    LIVES = NO. OF LIVES
2120 DATA 62,LIVES,50,127,152
2130 DATA 195,99,169,399
```



# NEW FUTURE SOFTWARE !!YOU WON'T BELIEVE THESE PRICES!! PLEASE NOTE OUR NEW ADDRESS

SPECTRUM	OUR PRICE	COMMODORE 64	OUR PRICE
WORLD SERIES BASEBALL	7.95	AZTEC CHALLENGE (Disk)	14.95
TRAVEL WITH TRASHMAN	7.95	FOREBORN FOREST (D)	14.95
BACKPACKERS GUIDE	7.95	ALIEN	9.95
SABREWOLF	8.95	COX ISSUS CHESS	9.95
ALIEN B	8.95	AMERICAN FOOTBALL	9.95
ROCKY HORROR SHOW	7.95	MAMA LLAMA	9.95
HUNCHBACK II	7.95	PSYCHODELLA	8.45
COMBAT LYNS	9.95	HUNCHBACK II	9.95
MACHINE CODE II	7.95	WATERSKI 3D	7.95
COONAME MATT	7.95	LOCO	7.95
VIEW TO A KILL	9.95	GUARDIAN	7.95
AMERICAN FOOTBALL	7.95	3D SCRAMBLE (like Zaxxon)	7.95
NICK FALDOS GOL	8.95	POSTER PASTER	7.99
LORDS OF MIDNIGHT	9.95	GYRON	7.99
GYSTRON	9.95	POSTER PASTER (D)	9.95
SPACE SHUTTLE	9.95	PIPELINE (D)	7.99
GYRON	9.95	VIEW TO KILL	10.95
<b>BBC</b>			
SPIDERMAN/HULK Twinpack	19.95	<b>COMMODORE C16</b>	
LINKWORD Italian	14.95	ARENA 3000	6.95
LINKWORD Spanish	14.95	CUTHBERT IN SPACE	7.95
LINKWORD German	14.95	CASTLE DRACULA	6.95
MUSIC SYNTHESIZER	7.95	CUTHBERT IN COOLER	6.95
GRAPHICS PACK	7.95	WILLIAMS ADV 9	5.95
VIEWFILE	14.95	ULTIMATE ADV. 4	5.95
VIEWCALC	14.95	FOURPACK - Hop It, Shoot It	14.95
ELITE	14.95	Munch II and Climb II	14.95
PYRAMID OF DOOM	8.95	FOURPACK II - Water G'd Pres, Auto-bahn, Vox and Apollo Rescue	14.95
<b>ELECTRON</b>			
BANDIT AT 3 O'CLOCK	7.95	<b>VIC 20</b>	
JET POWER JACK	7.95	DESTROYER	7.95
QUICKLY	7.95	FROG RUN	5.95
SHUTTLE	2.99	SPACE BOMBER/Man on Run	6.95
SPACE SHUTTLE	9.95	COSMADIS	6.95
ST FLIGHT SIM	9.95	ASTEROIDS	5.95
BLASTER	7.99	JUMPIN JACK	7.95
KILLER GORILLA	7.95	HELLGATE	7.95
VIDEO'S REVENGE	3.95	SHACKMAN	6.95
<b>ATARI 400/800</b>		CHOPPER	7.95
ARENA 3000	6.95	<b>AMSTRAD</b>	
CUTHBERT WALKABOUT	6.95	HUNTER KILLER	8.95
DANGER RANGER	6.95	LINKWORD GERMAN	14.95
MR DKS	6.95	LINKWORD FRENCH	14.95
PENSON	6.95	CASTLE OF THE SKULL LORD	7.95
SPACE SHUTTLE	9.95	BOUNTY DOB STRIKES BACK	9.95
COMPUTER WARS	7.95	WARGAME	8.95
ELECTRIC STARFISH	7.95		
GOAL	7.95		
GOLDEN BATON (Adv)	8.95		

Late addition to Spectrum & CBM41 GOLDEN STRATEGY/BOARD GAMES

10% discount for orders £30 or over. This is just a small selection of games on offer. Send now for our seven page catalogue S.A.E. please. BPO & Overseas orders deduct 15%.

ALL PRICES INC VAT & P&P.  
CHEQUES POSTAL ORDERS TO:  
NEW FUTURE SOFTWARE  
and send to:

4 Rowburn, Canonbie, Dumfries, Scotland

AUTOMATIC FREE MEMBERSHIP TO NEW FUTURE SOFTWARE CLUB WITH FIRST ORDER OR CATALOGUE REQUEST INCLUDES MONEY VOUCHER WITH LOTS OF SPECIAL OFFERS & DISCOUNTS

SOFTWARE PLEASE STATE TWO CHOICE TO AVOID DISAPPOINTMENT P06389

# POOLSWINNER

THE ULTIMATE POOLS PREDICTION PROGRAM

- **MASSIVE DATABASE** Poolswinner is a sophisticated Pools prediction site. It comes complete with the largest database available - 22000 matches over 10 years. The database updates automatically as results come in.
- **PREDICTS** Not just SCOREDRAWS, but AWATS, HOMES and NO SCORES.
- **SUCCESSFUL SELEC** guarantees that Poolswinner performs significantly better than chance.
- **ADAPTABLE** Probabilities are given on every fixture - choose as many selections as you need for your bet. The precise prediction formula can be set by the user - you can develop and test your own unique method.
- **SIMPLE DATA ENTRY** All team names are in the program. Simply type in the reference numbers from the screen. Or use FIXGEN to produce fixture list automatically (see below).
- **DISC/MICRODRIVE COMPATIBLE** Tapes supplied with conversion instructions.
- **PRINTER SUPPORT** Full hard copy printout of data if you have a printer.

AVAILABLE FOR Spectrum (48K), Commodore 64, VIC 20 (+16K), AMSTRAD, BBC B, Atari (48K), EX91 (16K), Dragon, Apple II, ELECTRON  
PRICE £15.00 (all inclusive)

**FIXGEN 85/6**  
AT LAST! No more struggling for hours to get the fixture list into the computer. FIXGEN has been programmed with all English and Scottish fixtures for 1988/6. Simply type in the date, and the full fixture list is generated in seconds. Fully compatible with Poolswinner.  
POOLSWINNER with FIXGEN £16.50 (all inclusive)

# COURSEWINNER v3

THE FUTURES COMPUTER PROGRAM  
You can develop and test your own unique winning system by adjusting the analysis formula, or use the program in simple mode. Coursewinner V3 uses statistical analysis of major factors including past form, speed ratings, course statistics, prize money, weight, going, trainer and jockey form etc. etc. It outputs most likely winners, good long odds bets, forecasts, tricast etc. etc. The database includes vital course statistics for all British courses. You can update the database - never goes out of date.

AVAILABLE FOR Spectrum (48K), Commodore 64, BBC B, AMSTRAD, Atari (48K), Apple II  
PRICE £15.00 (all inclusive) includes Flat And National Race versions.

Send Cheques/P.O.s for return of post service to ...

**selec**  
SOFTWARE

phone 24 hrs  
37 COUNCILLOR LANE, CHEADLE, CHESHIRE. ☎ 061-428 7425

(Send for full list of our software)

23-29 JANUARY 1986

# Evesham Micros PRINTER OFFERS

Look at these deals on centronics printers we believe that these prices offer the best value in the country. All prices include receipted delivery, despatch is within 48hrs of receipt of order provided goods are in stock. A printer lead is supplied to suit your micro free of charge, (please specify Amstrad, BBC, Oric, Dragon, Einstein, CBM64 or Memotech) for Spectrum or QL owners we will supply with an appropriate interface for an additional £20.00.

## SMITH CORONA FASTEXT 80

Bulk purchase allows us to offer this high quality, 80 column dot matrix printer for an unheard of price. Buy a proper printer for the price of a thermal. Friction feed is standard and an optional tractor unit is available.

**ONLY £129.95**

Price includes lead to suit your micro.

Or to suit Spectrum with Kempston centronics "E" interface £149.95

## SHINWA/MICRO P. CPA 80+

NOW WITH NEAR LETTER QUALITY MODE

Improved specification makes this, the latest version of this popular model, the outstanding printer buy in its class. As well as it's normal superb print quality at 100cps (better than the NLQ on many rival models) it now has an NLQ mode which offers even better print quality. This can be switched in either from a front panel NLQ switch or from software. Other features are friction and tractor feed, external dipswitches, graphics mode, square needle print head (gives less dotly look to print) and Epson compatibility. Take a look at these unretouched actual size print samples.

New NLQ PICA print style  
Standard PICA text (100cps)

True descenders on jpg etc.

ELITE mode gives 96 columns

CONDENSED mode gives 142 columns

**ENLARGED mode**

SUBSCRIPTS and SUPERSCRIPTS

underlines nicely

Good italic character set

We are convinced that this printer offers the best performance and value in its class and at our unheard of price is a BARGAIN.

**ONLY £189.95**

Price includes Centronics lead to suit your micro.

Or to suit Spectrum with Kempston "E" Interface £209.95.

## MICRO P MP165

This printer is a very high specification at an unbelievable price. It boasts 165 cps in draft mode and 70 cps in near letter quality mode, which is switch or software selectable. It is friction and tractor feed as standard has a 2K buffer and is EPSON compatible (it even uses an EPSON ribbon). It can print in standard PICA 80 column mode or a variety of others from enlarged 40 column mode to condensed at 132 column. Italics are available in all modes. Normally this printer would be expected to sell at £300 plus we are offering it at our ultra keen price inclusive of printer lead to suit BBC, Amstrad, CBM 64, Oric, Dragon, Einstein or Memotech.

**ONLY £249.00**

Price includes Centronics lead to suit your micro.

Or to suit Spectrum with Kempston "E" Interface £269.00

## COMMODORE OFFERS

CBM 64 COMPENDIUM PACK includes CBM 64, Data Recorder, Music Maker, Designer's Pencil and Adrian Mole book and game **ONLY £189.95**  
CBM 64 + 1541 DISK DRIVE With Super Zaxxon and Ultima III on disc free of charge **ONLY £279.95**  
CBM PERIPHERALS PACK includes 1541 Disk Drive and MPS 801 Printer **ONLY £199.95**  
CBM 1541 DISK DRIVE **ONLY £149.95**  
CBM MPS803 PRINTER Superb value. **ONLY £119.95**  
CBM 128 in stock now **ONLY £259.00**  
CBM 1570 DISK DRIVE in stock now **ONLY £189.95**  
CBM Compatible DATA RECORDER **ONLY £29.95**

## STAR SG10C

A superb new 120 cps Commodore ready printer that offers many features including friction and tractor feed, CBM graphics, near letter quality mode etc. Packaged ready to use at the special introductory price of

**ONLY £249.00**

All prices include P&P and VAT. Send cheque, Postal Order or Credit Card No. Credit Card order please by phone. Callers welcome. Wide range of goods stocked. Trade enquiries welcome. European orders send price as advertised. Outside Europe £2.00 for airmail. Mail order to Evesham Shop please.

**EVESHAM MICROS**  
BRIDGE STREET, EVESHAM,  
WORCS., WR11 4RY.  
Tel: 0286 41989

**MICRO CENTRE**  
1756 PERSHORE ROAD,  
COTTERIDGE, BIRMINGHAM.  
Tel: 021-458 4564





# Tony Bridge's Adventure Corner



## Club ventures

Since the mention in The Corner of adventure clubs, several readers have written expressing interest, but worried by the example set by earlier clubs (who, more often than not, took the money of would-be subscribers and quietly disappeared).

I think that those have largely fallen by the wayside, and experience of more recent ventures leads me to believe that your money will be fairly safe with any of those mentioned in The Corner of Vol 5 No 2. In fact, The Adventure Club Ltd offer a 'money-back' guarantee if you don't like the club's magazine or the services it provides. The prices that I quoted were wrong: £10.95 will get you a year's sub.

I've mentioned *Orcsbane* before, but this seems to be getting underway quite well now. It's really a fanzine, rather than a club in the same way as the others mentioned earlier, but it's great value at just 50p a copy. Subscribe for a year (which equals four issues) and you're also entitled to a monthly, free newsheet called *Babbs*. The latest issue has something like 38 pages, full of interesting articles from readers and Nick Walkland, the Editor. He's a student, though I hope his

work doesn't depend too largely on English grammar and spelling, and obviously loves adventures.

Much of the artwork seems to have been purloined from other sources, so if you are a dab hand at drawing, do Nick a favour and send him some jottings, if only to save him from lengthy incarceration or litigation (apart from which, if it's used, you get a free issue).

*The Adventurer's Guide* (the names get confusing) is just a few pages long, and doesn't contain so much of

point those people in the direction of those outfits which have been mentioned over the past couple or so weeks.

It's time to say hello to adventures from further afield (despite the protestations of certain xenophobic readers). Douglas Jeffery actually travels over 1000 kilometres to get his copy of *Popular*, and believes that he is the only person in the area (British Columbia, Canada) to own a Spectrum - so when he gets stuck in an adventure, he can't nip next-door for a spot of help!



interest to readers. But it does have a Swap department, potter reviews and hints 'n' tips as well as a phone-in Helpline on (0423) 711819, ask for Paul Hawksworth. The membership is growing quite well now, again the address of TAG is at the end of The Corner.

## Further afield

To round off this discussion of clubs, although I'll return to the subject later in the year, one or two readers seem to think I am a club! I've been described as many things, blunt instruments among them, but never a club, so I

He is having trouble with *Mountains of Ket*, get the food from the guard room, Douglas, and feed the dog. Now take the dog to the entrance cave and chain it up - get the wand and return to the dog, where you must drop everything you are carrying. I'll leave you to figure out the next moves, but soon, you will need to know that there is a popular sweet in Britain known as Polo, 'the mint with the hole'. I also advise saving as often as possible.

If you'd like to know more, try writing to Tom Frost (with a SAE); Tom was the first adventurer to solve the Trilogy, thus winning the award. He can be contacted at The Links, Montrose, Angus, Scotland, while Douglas lives at Larch Rd., RR#1, Telkwa, BC, Canada, VOJ 2X0.

Tom Frost wrote to me recently, partly to praise The Adventurers Club (see the start of this Corner), considering it 'money well spent. The gap left by the demise of *MicroAdventurer* has been well and truly filled'. He also draws my attention to the routine I published some while

ago to bypass the arcade section of *Eureka!* 'It only works', he says, 'on the side of the tape with parts 1, 2 and 3. On the other side, it apparently corrupts the acceptance of a numeric input, so that in Germany you cannot open the safe, and in the Caribbean you cannot open the door with the numeric keypad.' Aaah, they got us in the end!

Dashing back abroad again, Matteo Vaccari from Italy is a student of Computer Science at Milan University, and is interested in corresponding with anyone with knowledge of MUD-like, multiple-player adventures, for his degree thesis. Apparently, Richard Bartles, one of the founders of MUD, has been very helpful to Matteo, sending him papers and hints on the subject, but now, he needs to know more. If you're also interested in the subject, write to Matteo at: Via Sudorno 23, 24100 Bergamo, Italia.

## MUD insight

Maybe Bella the Witch can help him - he (actually Alan Lenton) wrote to me some time ago offering his insight to non-Commodore MUDers (Compunet users have their own Mudspot, and Alan, kind witch that he is, wants to redress the balance somewhat). Write to him at: 36 Green Dragon Lane, Brentford, Middlesex.

Finally, I've been taken to task by someone closely involved in the development of the Latin used in *Eureka!* - he says that 'Cave equis' (as in the adventure) is indeed the correct translation of 'beware of the horses', and that my feeble and misguided proposition, 'cave equi', actually translates as 'beware of (something) belonging to a horse'. Of course, I forgot that, in this instance, the verb 'caveo' must take the ablative case or perhaps, as you will know, the accusative. My apologies all round (and why didn't some of you others spot it, hey?) - *Cave pontus*, is all I can say!

*Orcsbane* Nick Walkland, 84 Kendall Road, Sheffield S6 4QH.

*The Adventurers Guide*, Red Brae, Bewerley, Harrogate, N Yorks HG3 5JE.

## Adventure Helpline

Going bananas? If you are stuck in an Adventure with nowhere to turn do not despair - help is at hand.

Fill in the coupon, explaining your problem, send it to us, and a fellow adventurer may be able to help.

Remember - the system only works if those adventurers who have solved the puzzles get in touch. Every week is Save An Adventurer Today (SAAT) week!

Adventure.....on (Micro).....  
Problem.....  
Name.....  
Address.....



## HOME MICROS — REPAIRED —

ACORN; BBC model B, model B plus.  
Electron; ADAM (keyboard only)  
AMSTRAD CPU (keyboard only).  
ATARI; 400, 800, 400XL, 800XL, 130XE,  
420, 260, AQUARIUS, COLECOVI-  
SION, COMMODORE; VIC20, C16,  
C64, C128, plus 4, SX64 CPU (keyboard  
only) DRAGON; 32, 64, EINSTEIN,  
ENTERPRISE; 64, 128, LYNX; 64, 128  
MEMOTECH, ORIC; atmos PSION  
organisor SINCLAIR  
Spectrum, Spectrum +,  
SPECTRAVIDEO, £30  
TANDY TRS 80 model 1.  
All MSX computers.

## DISK DRIVES — REPAIRED —

All 3in., 3½in., 5¼in. disk drives  
including Amstrad on-board  
disk drives  
(this price does not  
include drive heads  
which are subject  
to quotation) £36

# HERE At last!



## PRINTERS — REPAIRED —

All dot matrix printers of under  
300 cps

(this price does not  
include print heads  
which are subject  
to quotation)

£32

## TELEVISIONS & MONITORS — REPAIRED —

All televisions and monitors up  
to 16in.

(this price does not  
include tubes which  
are subject to  
quotation)

£45

All repairs include VAT,  
labour, parts, 6 month  
warranty,  
collection and delivery.

\* Full 6 month guarantee on  
repairs

\* No extra charge for parts

\* Full soak test before despatch

\* FREE collection and delivery  
in mainland UK

**Phone TODAY — 01-398 8055**  
**We COLLECT!**

**ALBANY COMPUTERS**

Albany Works, Queens Road, Thames Ditton, Surrey.

### PORTOBELLO PROJECT I.L.E.A.

Requires P/T youth worker (minimum 14 hrs p.w.) for the ILEA's Computer Centre (Youth).  
Experience in computing essential. Primarily the worker to develop our new computer centre.  
Centre offers wide range of workshops, user time & advice. Our Information Service also to go onto  
database. Our machines, RML 4802 are networked.

Information — contact Kamalis Redon on 01-221 4413

ILEA pay rates A) 5.66 B) 5.19 C) 4.34

Job description & forms returnable by February 6th to

K & C YOUTH OFFICE, 11 KING HOUSE, WESTBOURNE GROVE, W2. Tel. 01-227 1552

ILEA is an Equal Opportunities Employer

PL746

### THE WEIZMANN INSTITUTE FOUNDATION

### 1986 ANNUAL LECTURE

### "KEEPING IT SECRET"

### The Art and Science of Cryptography

by  
Prof. Adi Shamir

New developments in microcomputers, telecommunications  
and data storage techniques make our society increasingly  
dependent on digital information.

These applications are vulnerable to misuse. Ways must  
be found to protect the privacy of electronic information.

Professor Shamir will survey the history, applications and  
implications of cryptography, and describe the major  
research achievements of the last decade.

Wednesday, 19th March at 5 pm at  
The Stopford Building, University of Manchester

Thursday, 20th March at 7.30 pm at  
The Royal Institution, London

Admission by ticket only from:

The Weizmann Institute Foundation

14/15 Rodmarton Street, London W1H 3FW. 01-486 3954

PL1a

100 NEW TITLES REQUIRED IN 1986

## PROGRAMMERS REQUIRED

### TO SEND YOUR BEST GAMES PROGRAM

TO OMEGA FOR IMMEDIATE  
ASSESSMENT, OUTRIGHT  
PURCHASE OR ROYALTY  
ARRANGEMENTS FOR  
ALL MACHINES

Contact: Paul Wood



**Omega Software**

9 King's Yard Carpenter's Road

London E15 2HD

Tel: 01-985 6877



# FAST COMPUTER REPAIRS

## VIDEO VAULT INTERNATIONAL 10★ REPAIR SERVICE

THE NO. 1  
REPAIR CENTRE  
IN THE U.K.  
OTHERS  
FOLLOW

WHILE YOU  
WAIT SERVICE  
CALL FOR APPOINTMENT

24 HOUR  
TURNAROUND



KEYBOARD  
FAULTS  
SPECTRUM  
ONLY £8.95

### HOW TO SEND YOUR COMPUTER

Just parcel your computer in suitable wrapping enclosing £19.95 for Spectrum repairs, please do not send power supplies. Commodore computers, just send £1.75 (U.K. Eire, I.O.M. C.I.) or £6.50 (Europe/Scandinavia) with your address or phone number and we will contact you same day by phone or letter with quote, if you prefer, please call us and we will give you a quote over the phone, we aim to please. That's what made us the most reliable and No. 1 Service Centre in the U.K.

(SPARES AVAILABLE THROUGH OUR D.I.Y. SECTION.)

N.B.  
WE DO NOT  
CHARGE AN  
AVERAGE  
PRICE

TRADE  
REPAIRS  
most  
welcome

## BEST SERVICE — BEST PRICES!

### COMMODORES

\* NOW REPAIRED \*

Commodore 64, C16's, Vic 20,  
1541 Disk Drives. Same Day Service.  
Call us for details or purchase  
the I.C.'s from our D.I.Y. section

NEW  
VIDEOVAULTS 80K UPGRADE KIT,  
WATCH THIS SPACE FOR DETAILS  
AVAILABLE JANUARY 1986

THE  
LOGICAL  
CHOICE

THERE'S  
NOBODY QUICKER  
IN THE BUSINESS AT PRICES  
THAT CANNOT BE  
BEATEN

### \*SPECIAL KEYBOARD UPGRADE



Why not  
upgrade your  
Spectrum into  
a new keyboard,  
we can upgrade your  
old Spectrum into a new  
D.K. Tronics keyboard

for only £31.50  
which includes  
fitting + return  
P & P and V.A.T.

ORDER  
NOW!

### SPECIAL OFFER!

YOU CAN'T REFUSE

16K to 48K Upgrade  
Upgrade your 16K Spectrum to 48K Spectrum  
for only £19.95 fitted including V.A.T. and P & P.  
(Issue 2 - 3 only)

(Retained by Public demand.)  
To order the Upgrade kit,  
(only £17.95.)



STOP  
PRESS

MANCHESTER BRANCH  
opening FEBRUARY in the  
City Centre. Sorry for  
delay to all our Manchester  
customers

7 OPEN  
DAYS  
A WEEK

SERVICE  
ENGINEERS  
REQUIRED  
ONLY 1st CLASS  
ENGINEERS  
NEED APPLY  
FOR OUR  
MANCHESTER  
BRANCH  
OPENING SHORTLY

### VideoVault D.I.Y. CORNER

We regret we cannot  
show all the components  
available. Just give us a  
call and we can quote you  
over the phone, delivery  
by 1st class post.

#### Spectrum Parts

280B CPU	3.50
4116 Rams	1.00
ZTX 650	0.60
Transistor ZTX 213	0.60
Transistor ZTX 313	0.50
Power Supply Units	8.95
Feet (Each)	0.25
16K to 48K Upgrade KIT	17.95
Sockets 16-40 Pin	14.50p
Cassette Leads	3.50
T.V. Lead	3.50
Keyboard Membranes	4.00

#### Commodore 64 Chips

6526	23.00
6510	23.00
6581	23.00
901227-05	23.00
901226-01	23.00
901225-01	23.00
6569	3.00
4164 Rams	29.00
Power Supply Units	29.00
All prices + P & P. £1.50	
But include V.A.T.	

TRADE  
ORDERS  
WELCOME

VIDEOVAULT HEALTH WARNING!!!

Sending your computer to any other Repair Centre can seriously Damage its Health

# VideoVault Ltd.

Telephone: Glossop (STD 04574) 66555/67761  
140 High St. West, Glossop, Derbyshire, England

© Copyright Videovault Ltd. No. 151085

SPECIAL  
OFFER  
4 FREE GAMES  
NORMAL  
RECOMMENDED  
RETAIL PRICE  
YOURS FREE WITH EVERY  
SPECTRUM REPAIR  
£25.80



# There's a Dealer near you . . .

## BIRMINGHAM

D.G. MICROTEK ELECTRONICS  
190B DUDLEY ROAD  
WINSON GREEN  
BIRMINGHAM  
Tel: (021) 454 4697

PL544

## HEREFORDSHIRE

HONEYSETT COMPUTERS  
17 UNION STREET  
HEREFORD HR1 2BT  
Tel: (0432) 279404

PL524

## LEEDS

**MICROPOWER**  
NORTHWOOD HOUSE  
NORTH STREET  
LEEDS LS7 2AA  
Tel: (0532) 458800

PL583

## OXFORDSHIRE

CLUB COMPUTERS  
6 EVANS YARD  
BICESTER  
OXFORDSHIRE  
Tel: (0869) 248600

PL585

## ESSEX

MINNIE MICRO COMPUTER STORE  
12 EASTERN ESPLANADE  
SOUTHEND, ESSEX  
Tel: (0702) 615809

PL493

## HERTFORDSHIRE

BROADWAY COMPUTER CENTRE  
75 QUEENS ROAD  
WATFORD, HERTS  
Tel: (0923) 43301

PL536

## LEICESTERSHIRE

DIMENSION COMPUTERS LTD  
27-29 HIGH STREET  
LEICESTER  
Tel: (0533) 57479

PL540

## S. WALES

MAPPLE MICRO ASSOCIATES  
FREEPOST  
PO BOX 17  
CWMBRAN  
GWENT NP44 3YT

PL545

## WARWICKSHIRE

FAST FORWARD COMPUTER STORE  
29 SMITH STREET  
WARWICK  
Tel: (0926) 492004

PL545

## LIVERPOOL

BLUE CHIP  
77 ALLERTON ROAD  
LIVERPOOL L18 2DA  
Tel: (051) 722 3037

PL517

## LONDON

VIC ODDENS  
6 LONDON BRIDGE WALK  
LONDON SE1  
Tel: 01-403 1988

PL496

COMMUNICATION PLUS  
5 HONYWOOD ROAD  
(off Cranes Farm Rd)  
BASILDON  
Tel: (0268) 21818

PL591

COMMUNICATION PLUS  
c/o KEDDIES  
HIGH STREET  
SOUTHEND  
Tel: (0702) 62426

PL592

COMMUNICATIN PLUS  
14 ONGAR ROAD  
BRENTWOOD  
Tel: (0277) 229379

PL593

## HUMBERSIDE

THE COMPUTER CENTRE  
(HUMBERSIDE)  
26 ANLABY ROAD  
HULL  
NORTH HUMBERSIDE  
0482 26297

PL553

## KENT

ANIROG COMPUTERS  
29 West Hill  
Dartford  
Kent  
Tel: (0322) 91649

PL494

**dgh**  
software centre

10 NORTH STREET,  
ASHFORD, KENT  
Tel: (0233) 32597

PL598

GAMES WORLD  
129 KING STREET  
HAMMERSMITH  
LONDON W6  
Tel: 01-741 4467

PL516

SOFTWARE STORE LTD  
35 LONDON ROAD  
LONDON SW17  
Tel: 01-685 1476

PL599

## GLASGOW

THE COMPUTER DEPOT  
205 BUCHANAN STREET  
GLASGOW G1 2JZ  
Tel: (041) 332 3944

PL705

## LANCASHIRE

SOUND AND VISION  
11 SILK STREET  
LEIGH, LANCs WN7 1AW  
Tel: (0942) 673689

PL592

LOGIC SALES  
19 THE BROADWAY  
THE BOURNE, SOUTHGATE  
LONDON N14  
Tel: 01-892 4942

PL596

## YORKSHIRE

THE COMPUTER STORE  
18 CLEVELAND STREET  
DONCASTER  
Tel: (0302) 25260

PL515A

THE COMPUTER STORE  
26 TEALL STREET  
WAKEFIELD  
Tel: (0924) 384983

PL517

THE COMPUTER STORE  
8 BRIDGE STREET  
YORK  
Tel: (0904) 646934

PL510

THE COMPUTER STORE  
40 TRINITY STREET ARCADE  
LEEDS  
Tel: (0532) 429284  
(open now)

PL519

YORK COMPUTER CENTRE  
7 STONEGATE ARCADE  
YORK  
Tel: (0904) 641862

PL510



# CLASSIFIED

Semi-display — £7 per single cc (inc. VAT)  
Lineage — 30p per word (inc. VAT)

CALL DAVID OSEN on 01-437 4343 FOR SEMI/DISPLAY ADVERTISING

## SOFTWARE

### WDSOFTWARE

#### FOR THE QL:

**JOSS** base £13  
Forget that tedious, time-consuming syntax! Just move the cursor and press SPACE for all your file commands. Cursor keys or your joystick allow you to access microdrives (up to 8) and floppy discs (as many as our interface allows) with up to 150 files on each! Scroll and print directories, COPY, DELETE or PRINT any file, select TV or Monitor mode before LOADING or RUNNING any program. You only use the keyboard to set the DATE or label a device when FORMATTING. Easy to use with Pison and other software. No silly icons to learn — JOSS will TELL you what it's going to do! Programmer's toolkit and mass copying/printing utilities also supplied. Specially microdrive-only. Microperipheral or CIST-compatible disc versions.

**Ref QL7** base £7  
1300 useful QL references with ARCHIVE 2 search/print program. Too long for just one cartridge, so if you have RefQL5 just pay 2 and extra media cost to update.

**MDV Extension Cable** £5.50  
Eight inches long, allows addition of extra microdrives to your QL. Trial it to put their slots facing you.

#### FOR THE QL: SPECTRUM; BBC; ELECTRON

**WD Morse Tutor** base £4  
Written to teach amateurs, now used by professionals too! Absolute beginner, or stretching your speed to 18 wpm, you won't find anything with more helpful features. What else can offer 100 random sentences as well as all the basics? Disc version unsuitable for BBC B+.

#### FOR THE SPECTRUM:

**WordFinder (Microdrive/disc only)** base £8  
For CHEATING at crosswords. Finds m-a-s-g letters, solves anagrams. 13,000 word vocabulary, so too long to share a cartridge. 10-letter word ending in ATE? No problem.

**Tradewind** base £3  
Selling/trading strategy game with graphic surprises.

**Jersey Quest** base £3  
Test adventure in time. Background of Jersey folklore from Stone Age to Bergerac.

**For export:**  
QL hardware and software from many sources. Ask for list/quotation.

**ORDERING ADD COST OF MEDIUM, POSTAGE £1 OUTSIDE EUROPE.**  
MDV or 5.25" floppy = £2 3.5" floppy = £4 Cassette = £0

**Payment**  
By ACCESS/Eurocard/MasterCard or STERLING (UK bank cheques, Eurocheques, drafts or International GIRO).  
TO:

**WDSOFTWARE(WK), Hilltop, St. Mary, Jersey, C.I. tel: (0534) 81392** PL304

**ELECTRON** software for sale, 20 Arcade games on cassette, colour and sound, space invasions, to rallying, to cards, £3, Pool £2.95. Kung Fu Warrior, Fruit Machine, Breakout, all for £3. Send £1 for hire lists. 5 blank cassettes C15 £2. All include P & P send cheque/PO to Quality Software, 119 Hallington Head, Newton Aycliffe, Co. Durham.

### SPECIAL DEAL

**FOR ATARI  
400/800/XL/XE OWNERS**

No. 1. Hire your first two games FREE from our extensive range of software. Up to the minute releases available.  
No. 2. Buy all the latest software titles at best possible prices (new releases available direct from US). Atari hardware and modems now available at discount prices. For further details send SAE to:

**CHARWOOD GAMES  
30a Warwick Avenue, Quorn,  
Leicestershire  
Tel: 0509 412654** PL204

## CLASSIFIED ADVERTISING RATES:

Line by line: 30p per word,  
minimum 20 words.

Semi-display: £7 per single column  
centimetre, minimum length 2 cm.  
(Please supply A/W as PMT. Or  
supply rough setting instructions.)

These rates include VAT.

Conditions: All copy for Classified  
section must be pre-paid. Copy  
date 7 days before publication.

If you wish to discuss your ad,  
PLEASE RING David Osen 01-437  
4343.

## ANALOGUE ELECTRONICS

Let John Yobec help you to learn this fascinating and rewarding subject. The unique program with its mobile graphics and interactive sessions will introduce you step by step to the components and calculations used to design and construct transistor circuits. You will enter your own values of components and your Spectrum will show you the results.

For Spectrum 48K **£9.50**

**YOBEC TECHNICAL SERVICES LTD**  
P.O. Box 47, Lancing, W. Sussex, BN15 9LZ  
PL304

**HALLEY'S COMET** computer planetarium. Spectrum 48K, £8.95. Further details from: Anima Scientific Computing, FREEPOST 402, Hebburn, Tyne & Wear NE31 1BR.

## HINTS—POKES—MAPS

**MONTHLY HANDBOOKS PACKED WITH HUNDREDS OF TIPS, POKES, MAPS, COMPETITIONS AND SOFTWARE OFFERS:**

AMSTRAD HANDBOOK	£1.00
BBC HANDBOOK	£1.00
COMMODORE ARCADE HANDBOOK	£1.00
COMMODORE GAMES REVIEW HANDBOOK	£1.00
SPECTRUM ARCADE HANDBOOK	£1.00
SPECTRUM GAMES REVIEW HANDBOOK	£1.00
THE ADVENTURERS HANDBOOK (GIMSPIC)	£1.00

CIS/PLUS 4 (write for further information)

**STAD CHOUX O.P.E. LTD**  
H.B. SERVICES PCN1  
13/15 SMITH OLD ROAD  
HIGH WORTH, UPPENDEN  
MANCHESTER M11 1EG

**SOFTWARE** up for grabs, 100's of titles in stock, with up to 75% savings!! For price lists write to: G.C.C., 30 Webber House, North Street, Barking, Essex IG11 8JG. Please specify computer.

## EDUCATIONAL SOFTWARE

**AMSTRAD** Education, Infant, Junior, seven program set, £4.50. 5aE lists, Cordell, 53 Bentley Street, Cleethorpes, Humberside DN35 8DL (0472) 699632.

## AMSTRAD

### AMSTAT

#### AMSTRAD STATISTICS PACKAGE

AMSTAT 1 — means, s.devs, t-tests, 1-way-ANOVA, 2-way-ANOVA, correlations, regressions, histograms, scattergrams, transformations, file storage and retrieval, manual. £14.99 cash, £19.50 disc.

Cheques to **S. C. Coleman**,  
33 Leicester Road, Ashby-de-la-Zouch,  
Leics LE6 5DA.  
Tel: (0530) 415919

For technical information ring after 6pm or weekends.

**COMING SOON AMSTAT 2**

"A complete Siegel!" PL303

## TELEX YOUR CLASSIFIED COPY TO:

**296275  
SUNRGY**

HAS

### IDLE MEDDLER FOR AMSTRADS

THE MEDDLER, the deluge tape utility has now been upgraded to include TAPE to DISC transfer and HEADER INFORMATION. A number of other refinements for TAPE to TAPE have been added. IDLE MEDDLER now offers:

Choice of six tape speeds, plus a special binary save. DEPROTECTION, alters FILENAMES to suit AMSDOS. RELOCATES automatically. A full HEX and CHAR screen dump from ROM or RAM is included. Now all you need in one program, get that long loader on to DISC or FAST TAPE automatically. \$68 only £4.50 inc by return from: NEMESIS (PCW), 10 CARLOW RD, RINGSTEAD, KETTERING, NORTHANTS NN16 4DW. PL301

## THIS SPACE FOR SALE

**£28 (inc. VAT)**

TELEPHONE:  
PCW/CLASSIFIED

01-437 4343 Ext 206 PL353

## Here's my classified ad.

(Please write your copy in capital letters on the lines below.)


Please continue on a separate sheet of paper

I make this ..... words, at ..... per word so I owe you £ .....

Name .....

Address .....

.....

.....

Telephone .....

Please cut out and send this form to: Classified Department, Popular Computing Weekly,  
12-13 Little Newport Street, London WC2H 7PP.



# SERVICES

## The 1st choice EXPRESS SPECTRUM, BBC and COMMODORE REPAIRS!

**2 GAMES  
(WORTH £10) WITH  
EVERY REPAIR\***

**WHY PAY HIGH  
'FIXED'  
PRICES**

Spectrum  
repairs between  
£69 and £200

BBC repairs  
between  
£14 and £45

Commodore  
repairs between  
£14 and £35

### \*Spectrum only

(We do not charge you for our  
fancy premises by charging  
high fixed prices!)

Reputations take time to build,  
we have been repairing ZX81's,  
Spectrums, QL's, Apples and  
BBC's professionally, for 2 1/2  
years - who is coming second?

in all UK, with White-u-Wait repairs  
with INTERNATIONAL repair service!

to charge LOW PRICES for the smaller  
repairs (e.g. £9 for keyboard faults)

FOR LOW PRICES - "My computer  
blew recently, I took it to MANCOMP,  
who fixed it in 8 minutes! and for less  
than £10! They are local, closed up  
and blindingly efficient!" 4 HEATONS  
DIGEST.

FOR PROFESSIONALISM - "Of all the  
repair companies, 'Spiral' User spoke to,  
MANCOMP seemed the MOST  
PROFESSIONAL, when it came to advice  
and a helpful attitude" AUG 85.

FOR HONESTY - "We let you watch  
your computer being repaired and if  
there is nothing wrong with it, we will  
tell you!"

FOR REPUTATION & HELPFULNESS -  
"I have come across a firm that will be  
more than willing to advise you as to  
how to remedy your problems. They  
are called MANCOMP and as well as  
repairing faulty computers, are also  
quite willing to discuss your problems  
with you and offer reasonably cheap  
and more importantly CORRECT  
CURES" Phil Rogers POPULAR  
COMPUTING WEEKLY JAN 85.

FOR SPEED - "One firm at least can  
effect any necessary repairs over the  
counter in 45 minutes. Based in  
Manchester, MANCOMP can offer  
what is arguably the FASTEST  
turnaround in the business to personal  
customers" CRASH Magazine JUNE 1985

THIS IS WHY Spectrum users from  
London, Cornwall, Scotland,  
Birmingham, Liverpool, Coventry,  
Leicester, Glasgow, L.I.M., etc.  
AUSTRALIA, AUSTRIA, BELGIUM,  
EGYPT, EIRE, GERMANY, HOLLAND,  
KUNSAT, NORWAY, PAKISTAN, PAPUA

NEW GUINEA, SAUDI ARABIA,  
SWEDEN, SWITZERLAND and  
ZIMBABWE - send their Spectrums to  
MANCOMP for repair!  
24 HR. TURNAROUND - NO-QUISSE  
GUARANTEE - NO HIDDEN COSTS.

Because we repair hundreds of  
computers every week, we are  
able to pass on our 'component-  
buying discount' to YOU in  
lower prices... Z80A cpu  
£1.50, 4116 50p, Upgrade  
fitted £18.95

- we bring down the prices for  
repairs and components!  
(We may refuse to rewire  
computers suffering from  
attempted D.I.Y. repairs!)

Every parcel sent by  
Royal Mail Registered Post and insured  
for return journey! (For next day delivery include £1.50  
extra).  
(Security by prior arrangement).  
On-site maintenance for Apples,  
IBM's and most makes of printers  
also available.  
Guaranteed 4hr response!  
WHY DELAY - OUR ESTIMATES ARE  
FREE AND WITHOUT OBLIGATION. IF

YOU DO NOT LIKE OUR ESTIMATE  
WE WILL RETURN THE COMPUTER  
AND REFUND THE POSTAGE INCURRED

**MANCOMP LTD**  
(Dept. PCW4)

Printworks Lane, Levenshulme,

Manchester M19 3JP

Phone 061-224 1888.

OR 061-224 9888.

OPEN MON - SAT 9am to 7pm



What we do today ...  
others do tomorrow!

## COMPUTER REPAIRS IN LONDON!

- \* Spectrum, BBC, Atari, Com-  
modore, Amstrad etc.
- \* Low cost repairs from £12.00
- \* Collection & delivery optional.

Call Nigel: 961 2812

**ELECTRONIC SYSTEMS SERVICES**

P.O. Box 443, London NW10 8XB

PL306

**COMMODORE REPAIRS** by Commo-  
dore approved engineers. Vic 20 Modu-  
lators £6.50. Vic 20 from £14.50. CBM64  
etc. for more details write or tel: G. C.  
Bunce & Son, 36 Burlington Road,  
Burnham, Bucks SL1 7BQ. Tel: 06286  
61996.

## COMPUTER REPAIRS

We are the experts, having serviced Sinclair computers  
since the introduction of the ZX80.  
Don't waste money on estimates - we repair Sinclair  
computers at price quoted (inclusive parts, labour,  
postage, VAT, irrespective of fault. No hidden charges.  
Repairs guaranteed for 3 months.

Spectrum	£18.75 inc parts
Z801	£11.50 inc parts
15 KRAM	£9.95 inc parts
Microdrive	£15.95 inc parts
Interface 1-11	£18.75 inc parts
BBC	£22.00 + parts
Electron	£19.95 + parts
XX Memory Expansion Kit	£15.95

Computer Retailers please phone  
for Special Trade Prices

Call or send with cheque or P.O.  
T.V. Services of Cambridge Ltd.  
French's Road, Cambridge, CB4 3NP  
Tel: 0223 311371

**NOTE OUR PRICES AND WATCH OTHERS FOLLOW THE LEADER**

### BBC SPECTRUM REPAIRS

- \* Spectrum repairs £18.50 inc. parts in-  
surance and p.p.
- \* BBC B repairs £18.50 - parts, insur-  
ance and p.p.

Send your computer with cheque or P.O.  
for £18.50 and description of fault to:  
**SUREDATA (PCW)**  
Computer Service  
45 Wyndham Avenue, Edgeware,  
Middx.

Tel: 01-951 0124 PL33

### CHILTERN COMPUTER SERVICE

FOR FAST RELIABLE REPAIR SERVICE  
SPECTRUM... £18.00  
WE ALSO REPAIR CBM 64 & BBC, VIC 20, ORIC,  
AMSTRAD, PRINTERS & DISC DRIVES  
Ask for details.

We give 3 months warranty on replaced parts.  
Send computer with details of fault and cheque  
made out to:

**CHILTERN COMPUTER CENTRE**  
98/100 HIGH TOWN ROAD, LUTON, BEDS  
TEL: 0582 455664  
Overseas enquiries welcome PL291

**TO HIRE COMPUTER** and/or  
peripherals by the week or month,  
please ring 01-607 0157 or 01-997 6457.  
We specialise in BBC and Amstrad  
computers. Computer Hire Services,  
294a Caledonian Rd, London N1 1BA.

### MAKE YOUR PROGRAMS MAKE MONEY!

If you have a game, utility  
or application to sell, with a view  
to publishing (particularly  
CBM64 or BBC B) phone  
**JOHN COOK at:**  
Popular Computing Weekly  
on: 01-437 4343 PL40

## SPECTRUM — AMSTRAD — COMMODORE

## NOBLES COMPUTER REPAIRS

- \* Repairs carried out by our own engineers on site.
  - \* All repairs carry a 4 MONTH GUARANTEE
- For estimates phone or send your computer to NOBLES.
- Spectrum Plus ..... £16.95 inc parts  
post and pack
- Commodore 64/VIC 20 ..... from £9.95 plus  
parts
- BBC ..... from £18.95 plus  
parts

Also repair specialists for Amstrad and MSX computers

**NO HIDDEN CHARGES**

## ★SPECIAL OFFER

**5 FREE GAMES WORTH £25**

with each Spectrum repair Trade/School and Club dis-  
counts arranged.

\*For free, no obligation estimates phone or send your  
computer to NOBLES for the fastest, cheapest repairs in  
ESSEX.

## NOBLES

14-17 Eastern Esplanade

Southend-on-Sea

Essex

0702 63377/8

63336/7/8/9

7 days a week, 24-hour Answering Service

**SPECTRUM — AMSTRAD — COMMODORE**

## MAGAZINES

## commodore HORIZONS

**COMMODORE HORIZONS**  
Special offer! For a limited period only!

Take out a year's subscription to Commodore  
Horizons now and receive one of 7000 Sinclair  
books - absolutely free! Simply send us £10  
together with your name and address and your  
choice of book to:

**Commodore Horizons, Special Subs Offer**  
12-13 Little Newport Street  
London WC2E 8PP

Don't delay - post now!  
Books:  
1 Machine code graphics & sound on C64  
2 Artificial intelligence on C64  
3 Building with Logo on C64 PL168



## DRAGON USER

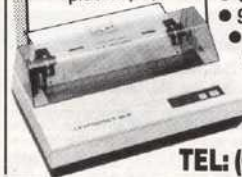
To make the most of your Dragon you  
need Dragon User - the independent  
magazine for Dragon owners. To make  
sure that you receive a copy of Dragon  
User regularly subscribe direct to us. A  
year's subscription costs £14 for 12 issues  
(overseas rates available on application).  
Send a cheque or postal order made  
payable to Dragon User, and accompa-  
nied by your name and address, to Dragon  
User, Subscription Department, Oakfield  
House, Perrymount Road, Haywards  
Heath, Sussex RH16 3DH. PL32



## ACCESSORIES

### YOUR PERSONAL CENTRONICS PRINTER

**£99 plus vat**  
plus £8 p+p



- DRAFT MATRIX PRINT
- NEAR LETTER QUALITY
- SUBSCRIPT SUPERScript
- CONDENSE EMPHASIZE
- 96 CHAR+48 EURO+16 MATHS
- GRAPHICS
- OPTIONAL TRACTOR

128 Station Rd  
Dunstable  
LU6 3BB

**ROCK HALL**

TEL: (0533) 313531

**HOME ACCOUNTS** Put your house in order! Comprehensive coverage of bank accounts, credit cards, HP etc. Inbuilt accuracy check. Projects cash flow for any period. Available for Commodore, Amstrad and Spectrum £8.45. Free details from: Discus Software, Freeport, Beach Approach, Brixham TQ8 8BR. Tel: 0808 455532.

### C15 BLANK CASSETTES

WITH LIBRARY CASES  
£20 per 100 full inclusive

UK HOME COMPUTERS (DEPT PCW)  
82 Churchward Ave, Swindon,  
Wilts. GTS3 6BS034 PL791

### SPECTRUM/SPECTRUM +

**OSCILLOSCOPE** add on  
with software. Samples up to 100kHz.  
Wide input range. Variable timebase. Self  
contained.

£38.95 S. Huckstepp,  
inc. P & P 6 Ashling Road  
Croydon  
Surrey

**SUPER** fantastic cas/disc stand complete with index cards, pen and discount voucher. Introductory offer £5.95 inc P&P or send sae for full specification. Devron Services, 13 Colleton Hill, Exeter EX2 4AS.

### FOR HIRE

## MIDLAND COMPUTER LIBRARY

### A SUBSIDIARY OF PLATINUM GOLD

- \* OVER 4,000 different titles available for hire for the COMMODORE, SPECTRUM, BBC, AMSTRAD, ATARI and MSX computers.
- \* ARCADE, ADVENTURE, EDUCATIONAL and BUSINESS software too.
- \* HIRE PRICES from only 75p inc P & P.
- \* 20% DISCOUNT off all purchase software.
- \* FREE CATALOGUES.
- \* FREE HINTS AND TIPS.
- \* FAST RETURN OF POST SERVICE (if reserves are given).
- \* ALL GAMES manufactures ORIGINALS with full documentation.
- \* OVER 6,000 satisfied members.
- \* EUROPEAN members welcome.
- \* LIMITED PERIOD ONLY FREE MEMBERSHIP.
- \* Fully computerised system keeps track of your order. We pride ourselves in being the most professional Hire Library in the United Kingdom, with staff of 14 who knows what the word service means. Backed by our own software company and programmers.

PL719

**MIDLAND COMPUTER LIBRARY:**  
28 COLLEGE STREET, WORCESTER, WR1 2LS.  
TEL: 0905 611072.

Please rush me my free catalogue stating machine.

Name: .....

Address: .....



### CABLES

Q1 Serial Cable	£7.50
Q1 Joystick Adaptors	£4.50
Q1 Monitor Cables	£5.00
ZX Serial Cable	£5.00
ZX Microdrive Cable	£5.00
BBC Printer Cable	£5.50
"CABLES MADE TO ORDER"	
Q1 Joystick	£8.50
Quickshot II	£8.50

### PRINTER INTERFACES

Q1 Centronics Printer Interface	£28.00
ZX Centronics Printer Interface	£28.00
Apple II Centronics Printer Interface	£28.00

TECH LINK LTD, 31 Salisbury Rd, St Annas, Bristol  
BS4 4EL. Tel (0272) 715370 24hr Service F120

### MEMOTECH COMPUTERS AND ACCESSORIES

MTX 500 COMPUTER	£59.95
MTX 512 COMPUTER	£99.00
DMX 80 PRINTER	£175.00
500K DISK DRIVE & INTERFACE	£199.00
1MB DISK DRIVE & INTERFACE	£222.00
NEWWORD ROM	£35.00
PASCAL ROM	£35.00
SPECULATOR ROM	£35.00

All the above prices are fully inclusive. We stock the entire Memotech Range. Orders/Enquiries to:

UK HOME COMPUTERS  
82 CHURCHWARD AVE SWINDON,  
WILTS. SN2 1NN  
24 hr Phone Service 0123 695034 PL27

### DUPLICATION

**WNE** for Data Duplication, competitive prices and efficient services. Telephone: WNE 021-643 7113.

FAST reliable service of DATA DUPLICATION for most computers. Comprehensive facilities include: values in recording, blank, discs/cassettes, blank or printed labels, disks, COMPETING PRICE LIST from:



PL319

### FOR SALE

**DRAGON 32** + Delta disc drive with Encoder 09 assembler/disassembler, Seikosha 100A printer, 2 joysticks, tape deck, super Dragon word processor MST Bus accounts, MST Inv/statements, 20 games, misc. software and books, 20 floppies, £300 the lot. R. Baker, 47 Lower Elmstone, Tilehurst, Reading, 0734-26539.



is seeking authors for new titles to add to its highly original and successful book range. Experienced and first time authors are invited to submit manuscript, ideas or fields of interest. Write to: The Book Editor, Sunshine, 12-13 Little Newport Street, London WC2H 7PP.

Sunshine Publishers of Popular Computing and Dragon User. PL31

**COMPUTER AIDED ENGINEERING (CAE)** Pipe sizing/pressure drop calculations for Spectrum. Microdrive cartridge £5.45, cassette £4.95. Send SAE for details. Willowbank Computing, 42 Lawson Close, Warrington WA1 4EG.

**BRING** your records to life! With m/c + basic program for the ZX Spectrum displaying multicoloured pattern on border in response to input signal, only £1.59. Additional information 35p extra. Please send cheque/PO to: Delta Software, 44 Carrbank Avenue, Ramsbottom, Lancashire, BL09DW.

**DATABASE** for the Commodore 64, features, search, sort etc. Disk, £5.95 or cassette £5.95. Send cheque/PO to Steve Johnson, 81 Chadborn, Paston, Peterborough, Cambs.



**Book  
your  
Classified  
or  
Semi-display  
advert by  
Credit  
Card**

**Call  
David  
Osen  
on  
01-437 4343**





# Charts

## Amstrad

1	(2)	Yie Ar Kung Fu	(Imagine)	£7.95
2	(1)	They Sold A Million	(Hit Squad)	£9.95
3	(7)	Grand Prix 3D	(Software Invasion)	£9.95
4	(3)	Formula One Simulator	(Mastertronic)	£1.99
5	(5)	Finders Keepers	(Mastertronic)	£1.99
6	(8)	Soul of a Robot	(Mastertronic)	£1.99
7	(-)	Who Dares Wins 2	(Alligata)	£8.95
8	(4)	Caves Of Doom	(Mastertronic)	£1.99
9	(9)	Computer Hits (10)	(Beau Jolly)	£9.95
10	(-)	Spellbound	(Mastertronic)	£2.99

## Atari

1	(2)	Goonies	(US Gold)	£9.95
2	(3)	Mercenary	(Novagen)	£9.95
3	(6)	Spy Hunter	(US Gold)	£9.95
4	(1)	Action Biker	(Mastertronic)	£1.99
5	(-)	Zorro	(US Gold)	£9.95
6	(4)	Fighter Pilot	(Digital Integration)	£9.95
7	(-)	Smash Hits 4	(English)	£9.95
8	(-)	Electra Glide	(Activision)	£9.95
9	(7)	King Of The Ring	(Gremlin Graphics)	£9.95
10	(10)	Jump Jet	(Anirog)	£9.95

## BBC

1	(1)	Yie Ar Kung Fu	(Imagine)	£9.95
2	(2)	Way of the Exploding Fist	(Melbourne)	£9.95
3	(-)	Bullseye	(Macsen)	£7.95
4	(3)	Strike Force Harrier	(Mirrorsoft)	£9.95
5	(7)	Nightshade	(Ultimate)	£9.95
6	(-)	Revs	(Acornsoft)	£14.95
7	(9)	Speech	(Superior)	£9.95
8	(8)	Citadel	(Lothlorien)	£9.95
9	(5)	Repton 3	(Superior)	£9.95
10	(-)	Gyroscope	(Melbourne House)	£8.95

## Commodore 64

1	(1)	Commando	(Elite)	£9.95
2	(1)	Rambo	(Ocean)	£8.95
3	(-)	Koronis Rift	(Activision)	£9.95
4	(3)	Winter Games	(US Gold)	£8.95
5	(4)	Last V8	(Mastertronic)	£2.99
6	(-)	Mercenary	(Novagen)	£9.95
7	(4)	Little Computer People	(Activision)	£9.95
8	(9)	Now Games 2	(Virgin)	£8.95
9	(8)	Fight Night	(US Gold)	£9.95
10	(-)	Kik Start	(Mastertronic)	£1.99

## Spectrum

1	(3)	Commando	(Elite)	£7.95
2	(2)	Rambo	(Ocean)	£7.95
3	(1)	Winter Games	(US Gold)	£7.95
4	(4)	Yie Ar Kung Fu	(Imagine)	£7.95
5	(5)	Spellbound	(Mastertronic)	£2.99
6	(6)	Saboteur	(Durell)	£8.95
7	(7)	Elite	(Firebird)	£14.95
8	(10)	They Sold A Million	(Hit Squad)	£9.95
9	(-)	Daley Thompsons Super Test	(Ocean)	£6.95
10	(-)	Back To School	(Microsphere)	£6.95

All figures compiled by Gallup/Microscope

## Top Twenty

1	(2)	Commando (Spectrum/C64)	Elite
2	(4)	Yie Ar Kung Fu (Various)	Imagine
3	(1)	Rambo (Spectrum/C64)	Ocean
4	(3)	Winter Games (Spectrum/C64/Amstrad)	US Gold
5	(5)	They Sold A Million (Spectrum/C64/Amstrad)	Hit Squad
6	(7)	Formula One Simulator (Spectrum/C64/Amstrad)	Mastertronic
7	(6)	Way Of The Exploding Fist (Amstrad/Various)	Melbourne House
8	(15)	Finders Keepers (Spectrum/C64/Amstrad/MSX)	Mastertronic
9	(8)	Computer Hits 10 (Various)	Beau Jolly
10	(14)	BMX Racers (Spectrum/C64/C16)	Mastertronic
11	(11)	Action Biker (Spectrum/C64/Atari)	Mastertronic
12	(10)	Spellbound (Spectrum/Amstrad)	Mastertronic
13	(8)	Elite (Spectrum/C64/BBC)	Acornsoft/Firebird
14	(-)	Koronis Rift (C64/Atari)	Activision
15	(16)	Now Games 2 (Spectrum/C64)	Virgin
16	(20)	Mercenary (C64/Atari)	Novagen
17	(12)	Transformers (Spectrum/C64/Amstrad)	Ocean
18	(21)	Big Mac (C64/C16)	Mastertronic
19	(28)	Rockman (Spectrum/C64/C16/Vic 20)	Mastertronic
20	(19)	Arcade Hall of Fame (Spectrum/C64)	US Gold

Figures compiled by Gallup/Microscope

## Readers' Chart No 58

1	(1)	Elite (Spectrum/C64/BBC)	Firebird/Acornsoft
2	(2)	Commando (Spectrum/C64)	Elite
3	(3)	Winter Games (Spectrum/C64)	Epyx/US Gold
4	(7)	Lord of the Rings (Spectrum/Amstrad)	Melbourne House
5	(6)	Yie Ar Kung Fu (Spectrum/C64/Amstrad/BBC/MSX)	Imagine
6	(4)	Monty on the Run (Spectrum/C64)	Gremlin Graphics
7	(10)	They Sold A Million (C64)	US Gold
8	(5)	Way of the Exploding Fist (Spectrum/C64/Amstrad/BBC)	Melbourne House
9	(-)	Little Computer People (C64)	Activision
10	(-)	Saboteur (Spectrum)	Mastertronic

Winning Phrase No 58: "EEC memo: Westland migration", from B Salmon of Shoreditch, London, who wins £25.

## Now voting on week 60 - £25 to win

Each week *Popular* is compiling its own special software top ten chart - compiled by YOU.

And each week we will send £25 to the person who sends in, with their chart votes, the most original (witty, neat or clever - but never rude) phrase or sentence made up from the letters (you don't have to use them all) in the titles of the top three programs in this week's Readers' Chart, published above.

You can still vote in the chart without making up a slogan - but you won't be in with a chance of winning the prize.

All you have to do is fill in the form below (or copy it out if you don't want to damage your magazine) and send it off to: Top 10, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP.

Voting for Week 60 closes at 2pm on Wednesday January 29, 1986. Entries received after that time will not be eligible for inclusion in that week's voting. The judges decision is final. Only one entry per individual per week will be allowed.

Name .....	My top 3: Voting Week 60
Address .....	1.....
.....	2.....
.....	3.....
My phrase is: .....	



# New Releases

## EXOTIC

My favourite peripheral of last year was, by a wide margin, *Specdrum* from Cheetah Marketing. For under £30 you got a very well designed, flexible system which gave you the equivalent, using sampled sounds of a drum machine costing, say, a couple of hundred.

Proof of the flexibility of the system and of Cheetah's good intentions towards supporting the unit is the *Specdrum Latin Kit* and *Kit Editor*. This is a piece of software, to be used with the system which replaces the supplied drum sounds with those of a Latin American Kit.

Exotic sounds like timbale, cabasa, stick and tamborine together with hand cowbell, another snare and another kick drum can be loaded into the *Specdrum* system and played in the same way as the original kit.

The *Kit Editor* is on the second side of the tape – this

lets you save individual sounds from different kits. More than that it lets you use some of the sounds backwards for unusual effects.

True to the ultra cheap tradition of the *Specdrum* the cassette costs a mere £3.99 and *Specdrum* owners won't need my recommendation to rush out and buy it. PS. Is there anyone out there with a simple and cheap way of linking the thing in to Midi?

**Program** *Specdrum Latin Kit*  
**Price** £3.99  
**Micro** *Spectrum*  
**Supplier** *Cheetah*  
1 Willowbrook  
Science Park  
Crickwell Road  
St Mellons  
Cardiff

## STRUCTURE

*Flowchart* from Supersoft is an unusual program which lets you examine your basic programs in the form of a flowchart. This can, theoretically at least, let you examine your program's structure and see how it can be improved.

*Flowchart* is loaded into memory and resides there whilst you load in your Basic program. Any sort of Basic program may be featured provided it does not exceed the 26620 bytes available once *Flowchart* is in place.

*Flowchart* is called by a SYS command and offers a menu which allows the chart to be dumped either to a printer or to the screen. On longish programs the flowchart is created in sections which can be examined by scrolling

Pick of the week

## TIME TRAVELLER

The *Eidolon*, a new Activision game due for release in a few weeks, is also the latest from Lucasfilms software division. The previous Lucasfilm offerings, particularly those using fractals (a landscaping technique), have seemed to be technically clever but dull to play – I'm thinking particularly of *Raid on Fractalus*.

The *Eidolon* is the first of the fractal games to match gameplay with technical cleverness. The plot, though simple, mixes some basic alien bashing with a little strategy, yet retains the impressive use of fractals to create rocky landscapes. In this case, the playing area is a series of caves populated by a series of strange creatures which feed off the power of your travelling device – the *Eidolon*.

Generally the setting is

very HG Wells with Victorian inventors experimenting with the powers of the mind. Main weapons are fireballs distinguished by colour. The colour of the fireball determines its properties – some freeze the monsters, others transform one monster in to another.

To move from one level to another you must find and defend a rather impressive dragon – again you need to find the right combination of fireballs. The game should prove very addictive and the graphics are most impressive. If you've been unimpressed by the fractal system before this may be the time to look again.

**Program** *The Eidolon*  
**Price** £9.95  
**Micro** *Commodore 64*  
**Supplier** *Activision*  
15 Harley House  
London NW1



through with a cursor.

What of the actual flowchart itself? Essentially it's a rather limited affair, clever as it is, and can be reduced to the following: Command lines are given differently shaped boxes according to type, and lines link the different sections of the program – arrows indicate in which direction the program is 'flowing'.

I found it interesting to examine programs using the flowchart, but doubt how

valuable this kind of analysis really is. Regard it as an interesting educational tool, rather than a really valuable utility.

**Program** *Flowchart*  
**Price** £12.95  
**Micro** *Commodore 64*  
**Supplier** *Supersoft*  
Winchester House  
Canning Road  
Wealdstone  
Harrow  
Middlesex

## This Week

Program	Type	Micro	Price	Supplier	Program	Type	Micro	Price	Supplier
Think!	S	Amstrad	£8.95	Ariolasoft	Koronis Rift	Arc	Commodore 64	£9.95	Activision
CBasic Compiler	Ut	Amstrad	£49.95	Digital Research	Discom 1	Ut	Commodore 64	£19.95	Scribos
Dr Draw	Ut	Amstrad	£49.95	Digital Research	Flowchart	Ut	Commodore 64	£12.95	Supersoft
Dr Graph	Ut	Amstrad	£49.95	Digital Research	Prographics	Ut	Dragon 32	£2.50	Diadem
Oddjob	Ut	Amstrad	£12.95	Pride Utilities	Battle of the Planet	Arc	Spectrum	£9.95	Micro-Gen
Pascal Mt+	Ut	Amstrad	£49.95	Digital Research	Costa Capers	Arc	Spectrum	£7.95	Firebird
Scriptor	Ut	Amstrad	£6.95	Pride Utilities	Realm of Impossibilities	Arc	Spectrum	£7.95	Ariolasoft
Wordplay	Ed	BBC B	£12.50	BBC Soft	Skylox	Arc	Spectrum	£8.95	Ariolasoft
Grumpy Supersleuth	Arc	Commodore 64	£8.95	Gremlin Graphics	Computer Wordsearch	S	Spectrum	£6.95	Softfirm
					Key: Ad – adventure    S – strategy-simulation				
					Arc – arcade    Ut – Utility    Ed – education				



## GOOD VALUE

Good value from Sinclair for QL owning text adventure fans. For £9.95 you can get QL versions of both *Mordon's Quest* and the original *Classic Adventure* of which it forms the sequel.



Text only, both adventures are likely to appeal to purist adventurers who get into the pure puzzle and other world aspect of the genre. Both adventures have previously been released on zillions of other micros and that may be one reason they are relatively cheap here.

Little point in discussing such lengthy and complex games which have, in any event, been discussed elsewhere. As adventures they fall into the moderate to difficult category, probably not for beginners. As technical achievements, there is nothing very special about either, the vocabulary is not especially wide – a standard verb noun format.

One criticism I have of the

QL edition is that no real effort has been made to make the screen look attractive. The boring QL character set is used and worse still, on our TV set at least, spills off both sides of the screen so that one or two characters are lost. Nevertheless, for fans of the classic adventure style this is an excellent value package.

**Program** QL Classic Adventures  
**Price** £9.95  
**Micro** QL  
**Supplier** Sinclair Research  
Milton Hall  
Milton  
Cambridge

## HORROR!

Superman! The game! The licensing deal! The disappointment! The sneaking it out quickly and making sure none of the magazines get to review it in time to spoil the Christmas trade! The Great Space Race!

Let's be generous; I'm sure that Beyond's contract to licence *Superman the game* from First Star probably didn't say "In return for lots of money and the rights to a lot of good games, First Star promise to supply one (1) real turkey", and I can imagine the horror in Beyond's offices when this one came through the door close to Christmas, but my sympathy ends when they try to sell the bloody thing.

*Superman* is like several Vic20 games stuck together with a scrap of programming sticky tape in order to pretend there is a plot. Put it

another way. If *Superman the game* were analogous to Superman the superhero, then *Superman the game* is what happens when Superman the hero is made to eat five tons of Kryptonite.

Not only are the games which make up the program dire, they are all fairly similar. Shunt superman around (he flies as though attached to a particularly unrealistic flying trapeze), blast things with his super heat vision (the super heat vision, a relatively minor feature of the original character, has been raised to great importance here), bounce things off adjustable barriers, pick up humans, and rescue them.

It isn't original (you can play 'spot the game rip-off'), it isn't well programmed (the animation seems to consist of the flicker caused by not knowing how to use large sprites properly), and it isn't worth buying. Tell the world IT MAY ALREADY BE TOO LATE!



**Program** Superman  
**Price** £9.95  
**Micro** Commodore 64  
**Supplier** Beyond  
Lector Court  
151 Farringdon  
Road  
London EC1

## DISC USE

*Discom 1* is a disc utility that provides a host of useful features to facilitate disc use. Of the 15 separate items on the disc, many would only be of use to fairly knowledgeable users – like accessing the Commodore Disc Operating System, for example – but there may be enough for the more casually interested.

There are commands to get a continuous disc directory to format of backup a disc to make a disc read only as well as to scratch files (and retrieve an accidentally scratched file) – you may also give files special codewords which lock any file until a letter sequence is typed in.

For those who have a lot of valuable programs and data on file, *Discom* could be very useful.

For the general games player I think the price of £19.95 will probably make it too expensive for the relatively small amount of file handling required.

**Program** Discom 1  
**Price** £19.95  
**Micro** Commodore 64  
**Supplier** Scribos  
2 Eden House  
Mansfield  
Woodhouse  
Nottinghamshire

## This Week

**Activision**, 15 Harley House, Marylebone Road, London NW1, 01 486 7588. **Ariolasoft**, Suite 105/6 Asphalte House, Palace Street, London SW1E 5US, 01 834 8507. **BBC Soft**, 35 Marylebone High Street, London W1 4AA, 01 580 5577. **Diadem**, 320 Cregagh Road, Cregagh, Belfast BT6 9EW. **Digital Research**, Unit 12, Felton Way, Southfields, Basingdon, Essex SS15 6SL. **Firebird**, Wellington House, Upper St Martin's Lane, London WC2H 9DL, 01 379 6755. **Gremlin**

**Graphics**, Alpha House, 10 Carver Street, Sheffield, S1 4FS, 0742753423. **Mikro-Gen**, 44 The Broadway, Bracknell, Herts, 0344 427317. **Pride Utilities**, 7 Chalton Heights, Chalton, Luton, Beds LU4 9UF. **Scribos**, 2 Eden Low House, Mansfield Woodhouse, Nottinghamshire NG 19 9RA, 0623 650961. **Softfirm**, 21 Ashbourne Way, Thatcham, Berks, RG13 4SJ. **Supersoft**, Winchester House, Canning Road, Wealdstone, Harrow Middlesex HA3 7SJ, 01 861 1166.



## Inner conflicts

The use of computers in diagnosis of physical disorders is now well established, particularly in American hospitals.

Massive data banks of symptoms can be cross referenced to diagnose an illness to a 95% level of accuracy (the best human consultants have been found to achieve only 87%). These diagnostic expert systems can even make what appears to be intuitive guesses on a patient's illness, by methods which are in fact based on mathematical probabilities.

In Western society, mental stress disorders and neuroses seem to be responsible for an ever increasing level of patients' incapacities and physical disorders. It would therefore seem inevitable for the computer to move into the field of mental health treatment.

To some extent this is already occurring initially at the experimental and academic level, but is now manifesting itself in the form of practical treatment.

It is unlikely that a conversation with a computer could be programmed to uncover any serious underlying conflicts of specific past experiences causing a patient's present neurosis which might manifest itself in such symptoms as depression or phobia.

If not psycho-analysing the patient, we might soon be seeing the computerisation of existing behavioural treatments such as systematic desensitisation. This is a long-established method by which the stimulus which initiates the anxiety state, such as open spaces in the case of agoraphobia, are gradually introduced while simultaneously reducing the anxiety state by reassurance or drugs.

Unfortunately these sessions can in some cases be very time-consuming and require the presence of a qualified psychiatric nurse.

A new form of treatment for agoraphobia is now currently under development (Desensitisation Monitoring System - DMS), which can be administered by the patients themselves as frequently as they like. It incorporates computer graphics to simulate walking into ever increasing opening corridors, while simultaneously monitoring the anxiety state of the patient which is displayed in a corner of the screen, thus enabling chronic

patients to familiarise themselves with the idea and feeling of walking in open spaces, and come to terms with the associated anxiety state.

It is an introductory treatment prior to actually going out into the world accompanied by someone, which by itself would be too major a step for some patients who have spent years confined to small rooms.

But desensitisation techniques are still only treatments of symptoms, and while some psychiatric doctors such as Eysenck believe that the symptom itself is the illness, others believe that symptoms such as agoraphobia are only manifestations of deeper inner conflicts, which must be resolved for an effective lasting cure.

Some qualified psychologists suggest any possibility of treating any form of neurosis by computer as absurd. Dr Victor Myer, head psychiatrist and senior lecturer at Middlesex Hospital, has condemned the treatment of 'symptoms' while leaving the underlying problems unresolved. Dr Myer states that mental illness might manifest itself in symptoms but it is usually a faulty entire 'life style' that must be identified and restructured to effect a lasting cure for the patient, and no computer could do that.

However, at St David's hospital in Wales another computerised therapy for the treatment of a pure symptom, again agoraphobia, is already taking place.

The conflicting attitudes of these two senior analysts serves to illustrate the fundamental division in the psychiatric world of whether to treat the symptom itself, or whether to treat the theoretical inner conflict.

In the physiological world of medicine expert systems for the treatment of physical illnesses such as goitre, cancers and blood disease are easy to utilise. Computers are now also used to identify location of brain lesions to enable more efficient and faster neurological surgery. But it is unlikely that a computer could ever talk to a human under mental stress in the same way as an analyst.

The compassion and instinct of one human being treating another for mental illness via their own personal experience and understanding of emotional feelings is something that even if it were clumsily imitated, is unlikely to ever be successfully duplicated.

David Karliner

## Puzzle No 192

Write out the nine digits, 1 to 9, in order in a row on a sheet of paper. The problem is to insert into this row two 'plus' signs and two 'minus' signs so that the sum so formed will equal exactly 100.

For example, I may have written:

$$1 + 23 + 456 - 78 - 9$$

only in this case the total would come to 393, and not 100.

The signs can be in any order along the line, but you can only put them *between* two of the digits - that is, you cannot, for example, put either a plus or a minus at the extreme left-hand end of the row.

Given these restrictions, how many different ways can you find to perform the task. And what are they?

## Solution to Puzzle No 187

The solution depends on testing varying sums of money to determine if the amount remaining after each transaction is a whole number of pence.

```
10 LET PENCE=3
20 LET G=PENCE/3:LET R=PENCE-G
30 LET R=R-50
40 LET R=R/2:LET B=R
50 IF R<INT(R) OR R<1 THEN GOTO 110
60 LET R=R-(G/2)
70 IF R<INT(R) OR R<1 THEN GOTO 110
80 LET R=R-(B/3)
90 IF R<INT(R) OR R<1 THEN GOTO 110
100 IF R=50 THEN PRINT PENCE;" "R
110 LET PENCE=PENCE+3
120 GOTO 20
```

Starting with an initial value of three pence, the result of each transaction is assessed. If the remainder falls to less than one penny or is fractional, a revised starting value is calculated. This increases in multiples of three pence as the first transaction requires one third of the amount to be spent.

## Winner of Puzzle 187

The winner is Miss H J Bailey, of Hunter Road, Sheffield, South Yorkshire S6 4LF, who will be receiving £10.

## Rules

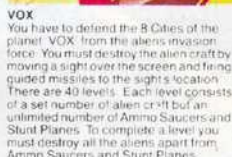
The closing date for Puzzle 192 is February 19.

## The Hackers





**FOR THE C16/PLUS 4, STARTER PACK 2**



R.R.P. **£14.95**

POGO PETE • MOUNT VESUVIUS • WINTER OLYMPICS • GUNSLINGER • JET SET WILLY



R.R.P. **£4.95**

Tynesoft Computer Software, Addison Industrial Estate, Blaydon, Tyne & Wear NE21 4TE

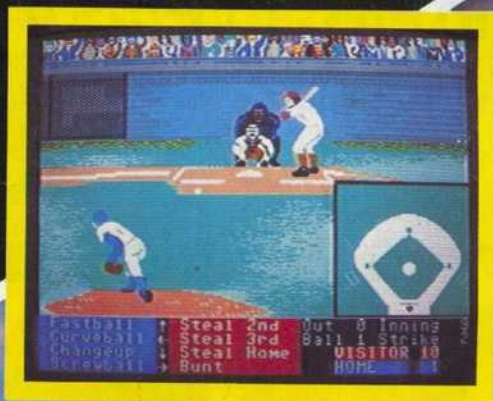
Title (Tick)		Initials		Surname	
Mr	Mrs	Miss			
BBC/Electron		Address			
C16/Plus 4					
Post code		Telephone no. (including STD code)			



# The Standard by which others will be judged.

This is Hardball from Accolade. The first in a new generation of game software that sets the standard for others to beat; if they dare! With graphics so large and lifelike and sound effects so real, you'll believe you really are at the ball park - yes, you can almost smell the hot-dogs!

Sorry, we can't supply the hot-dogs; you'll have to bring your own - but everything else is here to recreate the atmosphere, tension and excitement of big time baseball on your own small screen.



ALL-STARS										CHAMPS									
Player	Pos	Bat	AB	R	H	RBI	SB	AVG	OPS	Player	Pos	Bat	AB	R	H	RBI	SB	AVG	OPS
Allen	SS	R	20	3	10	3	1	.500	1.000	McCall	SS	R	20	3	10	3	1	.500	1.000
Jose	1B	R	20	3	10	3	1	.500	1.000	DeSoto	1B	R	20	3	10	3	1	.500	1.000
Miller	2B	R	20	3	10	3	1	.500	1.000	Conos	2B	R	20	3	10	3	1	.500	1.000
Craven	3B	R	20	3	10	3	1	.500	1.000	Barnes	3B	R	20	3	10	3	1	.500	1.000
Lorenzen	4B	R	20	3	10	3	1	.500	1.000	Nyden	4B	R	20	3	10	3	1	.500	1.000
Laws	5B	R	20	3	10	3	1	.500	1.000	Morra	5B	R	20	3	10	3	1	.500	1.000
Bautista	6B	R	20	3	10	3	1	.500	1.000	Hills	6B	R	20	3	10	3	1	.500	1.000
Watten	7B	R	20	3	10	3	1	.500	1.000	Varian	7B	R	20	3	10	3	1	.500	1.000
Doggett	8B	R	20	3	10	3	1	.500	1.000	McCall	8B	R	20	3	10	3	1	.500	1.000
Frisina	9B	R	20	3	10	3	1	.500	1.000	Euler	9B	R	20	3	10	3	1	.500	1.000

# HardBall!

By Accolade

For Commodore 64

Cassette - £9.95

Disk - £14.95





